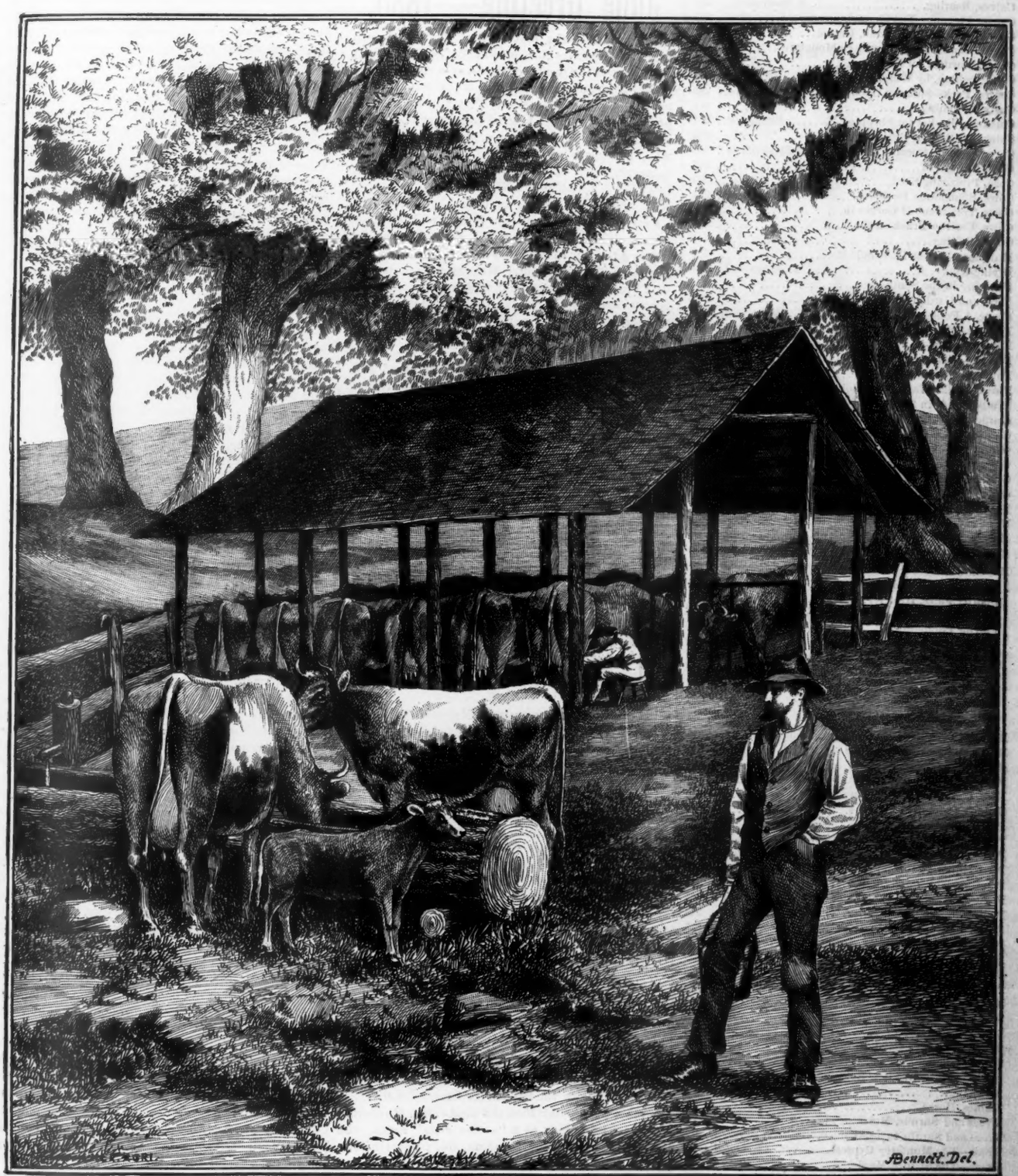
AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

VOLUME XLIV.—No. 6. NEW YORK, JUNE, 1885. NEW SERIES—No. 461.



"COME, BOSSY!"

Drawn and Engraved for the American Agriculturist.

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ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND CLASS MATTER.

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June.

And what is so rare as a day in June?
Then, if ever, come perfect days;
Then heaven tries the earth if it be in tune,
And over it softly her warm ear lays.

JAMES RUSSELL LOWELL.

For Important Announcements see page 268.

June Greeting—1885.

In completing the first half of its forty-fourth year, the *American Agriculturist* for June one year ago observed: "Over three thousand congratulatory letters from subscribers within a few weeks afford most gratifying assurances that the steady improvements in this Journal are everywhere recognized. The present owners and publishers, who, six years ago, assumed control and management, have freed the *American Agriculturist* from *all* ENCUMBRANCES, and, equipped with brains and means as never before, unhesitatingly promise a paper better and stronger with each succeeding issue. Dr. Geo. Thurber, for nearly a quarter of a century the Editor, and **all** the able Associates and Writers who have rendered material assistance in making the *American Agriculturist* what it is to-day—**are still with us.** At no period of its existence has this Company been in so prosperous and stable a condition as now."

Now with our editorial staff, an increased subscription list, staunch friends, and a bright future, the Publishers of the *American Agriculturist* renew the assurances and promises made to their readers when entering twelve months ago upon this new era of its existence.

JUNE

The late spring has crowded May work into June. A great breadth of corn will have to be planted this month; early-maturing varieties should be sought, even if the seed cost a good deal more. Manure should be applied liberally, for the late planted maize must do a deal of growing in a short time; but with fertilizers and good tillage this crop seldom disappoints. Very little grass will be fit for the scythe before the last week of the month. We may have to provide against a short crop by sowing forage of some sort. The kind depends upon the soil. If one has deep, rich, mellow soil, and can use yard-manure besides, nothing will pay so well on the whole as fodder corn. The best is "Evergreen," or "Mammoth Sweet," though the large "White Dent" gives satisfaction. The same is true of corn for ensiloing. Do not stint the seed. Broadcast fodder corn is never so satisfactory as that in rows thirty inches to three feet apart. For curing dry, this crop may be put in any time this month, or even later. There are several kinds of millet which may be sown for hay as late as the last of this month. Among them are none better on fairly good soil than the Golden (or German) millet. It is more productive than the kind called Hungarian Grass. Pumpkins as a "stolen crop" among the corn are never to be recommended; nevertheless, if, on account of the bad season, the work of crows, or other cause, a good many hills miss, the case is altered, and a crop of field pumpkins may be taken with apparent benefit, though it is altogether probable that, if we were to know exactly how much the corn is damaged by the presence of the pumpkins, the result would not be so satisfactory. White beans dropped where the corn has missed, are a satisfactory crop, involving little extra labor, and do not interfere with late tillage, by either hand or horse....Take care of the pastures. Those farmers who have sweet upland pastures, free from weeds, covered with a close fine sod, with springs of water and some shade, have gifts from Heaven which they cannot too highly prize. They must not be cropped too close; keep horses and sheep off in dry weather, though in moist seasons they will do no harm; in fact, sheep are a great help in keeping down weeds, for they eat many which cattle refuse. June is the butter month, and that is why such pastures are of so great value. The flavor of the golden product of the pasture and the kine, is highest and most "rosy" now. That it shall be made and preserved at its best, the dairy must not only be sweet as soap and hot water can make it, but it must be far away from evil odors of every kind. For this reason the sensitive dairy woman will not make her butter for packing until after the manure is all hauled out, and the barn-yard cleaned and strawed. She will make it lively for the "men folks" if they manure any of the fields within sight or, at least, smelling distance of the dairy this month, or in any proper butter month....Millet is one of the most valuable articles of forage for milk- and especially butter-yielding cows, and a moderate supply, to be used either green or dry with corn fodder, which, fed green, always thins the milk, is of great value....The top-dressing of growing crops, grass, grain, roots, corn, etc., during the summer, with soluble manure, is often of extraordinary benefit. Nitrate of soda offers one of the best and least used fertilizers for this purpose. It may be sown broadcast by itself, or mixed with earth, simply to extend it and spread the dressing more evenly. Care must be used to apply it either just before or during rainy weather.

Kitchen and Market Garden.

Weeds, more than anything else, will demand attention. A weed that the rake will kill when young, if allowed to grow a few weeks, makes hard work with the hoe: "Early and often" is the motto in weeding. Try the rake on very young weeds. Proper weeding helps the crops by keeping the soil loose....Succession crops should be sown to keep up a continuous supply of beans, peas, sweet corn, beets, cucumbers, lettuce, etc. Spinach sown now will run to seed; try beets instead; also New Zealand Spinach, which needs warm weather....Stop cutting the Asparagus when peas are plenty. Apply some quick-acting fertilizer, like nitrate of soda, and allow the shoots to grow....Beans.—If the Limas have not made a good stand, plant more seed at once; three plants to the pole are enough—two will answer....Forward Early Cabbages and Cauliflowers by frequent hoeing. Seeds for a late crop may still be sown early this month. Try some Savoys....Cucumbers.—Sow the pickle crop by the middle of the month. Sow in well-manured drills, six feet apart, dropping a dozen or more seeds to the foot; a final stand of a plant every foot or two will be enough....Celery plants in the seed-bed may be shorn, to make them stocky. In the latitude of New York, next month is early enough to set out the main crop....Egg Plants should not go out until settled warm weather; give rich soil....Onions.—Market when half grown; keep clear of weeds....Root crops, such as Beets, Carrots, Salsify, and Parsnips, are rarely thinned enough; thinning freely is the chief step towards well-grown, tender roots. Cultivate between the rows until the foliage prevents....Keep the flower-stalks cut from the Rhubarb bed....Peppers are to be treated like egg plants....Squashes of the Hubbard and other winter kinds need a warm soil. They may be planted in well-manured hills eight feet each way, leaving four plants in each, or in drills ten feet apart; drop eight or a dozen seeds each four feet, and secure two plants. Use plaster for the early bugs, and Paris green for the later enemies....Only in market gardens should Tomatoes be without support. Whatever will keep the fruit from the ground, whether it be merely brush, or a regular trellis, will so improve the quality, that it is worth providing

Orchard and Fruit Garden.

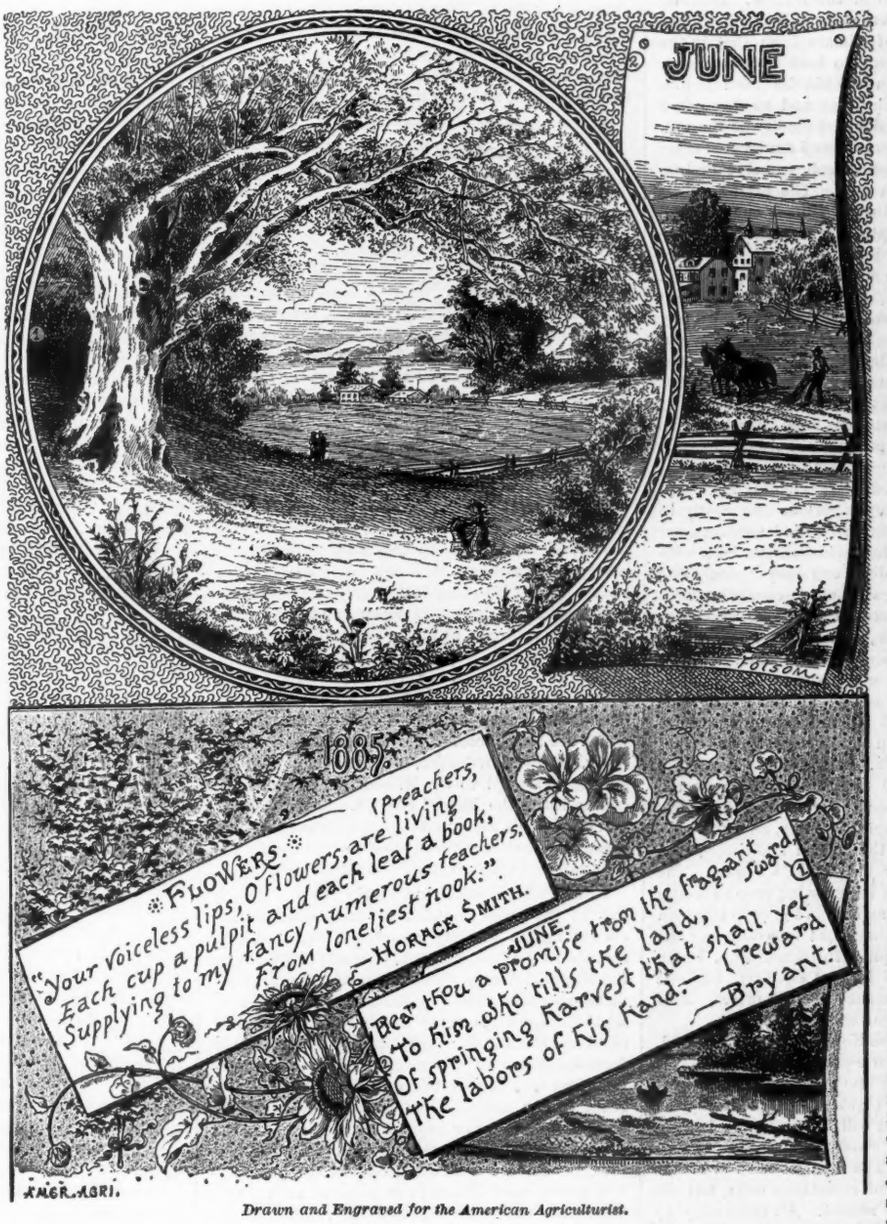
Mulch trees planted this spring, if the surface soil cannot be kept mellow by frequent use of cultivator or harrow. See article elsewhere....Make a record of the trees in a newly-planted orchard, and label all scattered trees....In large branches two grafts are usually set. If there is one too many, and the head will be crowded, cut it out. Treat a growing graft as if it were a young tree; pinch and control its growth. Remove all shoots just below the graft....Thin fruit early. Try a few trees, remove half the fruit that sets, and note the result at harvest time....When the leaves are fully expanded, is the safest time for the removal of large branches....Insects demand attention. Curculios can only be destroyed by jarring the trees in early morning, catching on sheets, and killing. Remove all webs of Tent Caterpillars; the hand is the most useful implement. Fasten cloths around the trees, with a single tack, to catch the Apple-worms as they descend; remove every ten days, and kill those trapped. If Canker-worms are in the trees, Paris green may be used. Pear slugs are killed by dusting with lime. Borers, if in the tree, must be cut out with knife and wire-probe. Paper bands will prevent them from entering. The eggs are usually laid this month....If Black-knot appears on plum trees, cut out when it first appears through the bark; if badly infested, remove the branch or the whole tree....Strawberries give the first returns. If the beds are not mulched, apply straw, coarse hay, leaves, or corn-stalks, to keep the fruit clean. Watch the pickers. One over-ripe berry spoils a basket. Strike runners in small pots for planting in August or September....Grape vines planted this spring should bear but a single shoot; rub off all others. Older vines may have two or three, according to method of training. Remove all superfluous shoots; keep those to bear fruit or form canes tied up. Soft cotton twine is a good tie. Vines bearing for the first time should have but a single cluster to a shoot. ....Currants and Gooseberries are benefited by a mulch. The same "worm" attacks both; on its first appearance apply white hellebore in powder. Dust it on the leaves, or apply it mixed in water, a tablespoonful to a pailful, constantly stirring from the bottom, as it is not soluble in water; renew every three or four days, until all are killed. ....Raspberries and Blackberries. — Allow only those suckers to grow that are needed for next year's fruiting; keep tied up, and hoe up the rest.

Greenhouse and Window Plants.

Plants set outside for the summer should not suffer for lack of water, too much sun, from insects, or from weeds in the pots....Make all repairs in the greenhouse and in the heating apparatus early.

Flower Garden and Lawn.

Keeping is the main care now. The lawn should be cut with the machine as often as once a week, and oftener, if there is a rapid growth. Dig up large weeds. Near the trees and shrubs use the scythe or sickle....All borders of perennials should have the surface kept clean by frequent use of hoe and rake....Plant out beds of coleus and other greenhouse plants... Cannas and tuberoses may be planted when the weather is warm....Sow seeds of annuals to keep a succession. Do not forget the everlastings....Unless seeds are to be saved, cut away the clusters from perennials as soon as the bloom is over.. Do not take up spring bulbs until the leaves fade; store them in a cool and dry place.



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PREPARING SEED CORN.—The thorough drying of seed corn is of great importance, as has long been well known by farmers who have been in the habit of hanging the selected ears in a smoke house, or to the rafters in the warm, dry attic. Damp ears taken from a corn-crib, yield very poor seed. The late season will cause a good deal of late planting, and it will be wise to select the seed with great care. It will be a good plan to procure good seed from thoughtful, careful neighbors, and pay a good price for it, rather to than plant poor seed that has been weakened by exposure to the cold and damp in the crib, and is generally moldy. After such an experience, farmers would in future take care to select their seed corn in the fall, and keep it in a warm, dry place, in the best order for planting.

Raising Spring Chickens.

The most profitable period in the life of a fowl, is when it is about ten or twelve weeks old. If it has been well cared for, a chicken will weigh two or two and one-half pounds then, and will be worth at least twenty-five cents a pound. Fifty cents is a very profitable price for a chicken of this age, which need not cost more than fifteen or twenty cents. Early chickens sell the best, and those which have been hatched in April or May, should now be ready for sale. The young cockerels only, need be fed for this purpose, and the pullets should be kept for breeding. The best food for forcing a chick is scalded corn meal, allowed to soak for twelve hours. Fresh bone, crushed with a hammer on a stone or block, is also excellent food for this purpose, as it aids digestion, and supplies a considerable quantity of fat. This should be given two or three times a week. The refuse fat and bone from a butcher's shop, which can be purchased very cheaply, may be turned to good account in the poultry yard, and cheap wheat screenings and crushed oats, which are cheap food, may be fed with them. Chickens should have an ample and frequent supply of fresh, pure water. Water makes up seventy-five per cent of the weight of all animals and materially helps the digestive process. Whatever aids digestion, helps growth and assists in the fattening. All the male chickens should be sold and out of the way by July, excepting those reserved for breeding, and as soon as the last setting of eggs is put under the hen, every full-grown male bird should be put in confinement to fatten for kitchen use, or for sale. During the hot weather they are a worry and a loss to the hens, which thrive better and will lay more eggs without them. The best markets for "broilers," as young chicks of two pounds or less are called, are the country boarding houses, and hotels and private families in the towns and cities. This kind of poultry can be shipped alive in baskets, covered with wire netting, five hundred miles with ease and safety. For instance, the New York markets are now largely supplied with spring chickens from Virginia and North Carolina, and by feeding well before starting, and leaving some corn in the coops, the chicks reach the hands of the consignees in good order, provided they are not packed too closely in the cars.

Farming in the Southwest.

There are many farmers at the present time thinking of changing their place of residence, to locate on newer and more fertile soil, and a correct knowledge of the locality to be selected is very important to all. I would advise any farmer intending to make a purchase or trade in lands not in his immediate vicinity, to not only go and see before locating, but to live at least one year where he intends making his home. In this way and in no other can he assure himself whether the change will be a benefit to him or the reverse. Farming in the South and Southwest is so radically different, and the change of climate from that in the Northern States so trying to both man and beast, that great deliberation should be used before making the change. The first and most marked change will be in the color and quality of the soil. Here in Central Arkansas where I am located there are three principal classes of soil, namely: Prairie, timber land and bottom land. The prairie soil is not so dark colored as that of Illinois or Iowa, and is underlaid, at the depth of two feet, by an excessively adhesive hard-pan, perfectly impermeable to water. It holds water and makes the soil cold and late to work. Another peculiarity about it is, that it requires two years, from the breaking, to raise a paying crop. The sod is so tough, and the summer season so dry, that it will not rot the first season. It is covered with a grass that makes fair hay, yielding about one ton to the acre. It also furnishes good pasturage from March 15th to December 1st. It will produce about half the crop that can be raised on good Northern prairie. The timber land is more productive, yielding fair crops of grain, but it is very laborious and costly to clear. The farmers here girdle the large trees, cut all those under twelve inches in diameter level with the ground, and then plow, or rather "root" the soil with a "bull-tongue" plow, consisting of a narrow steel shovel, fastened to a stock, similar to a Northern shovel-plow, and drawn by one mule or a pony. Then for a series of years they have a clearing and burning every spring, necessitated by the falling branches of the girdled trees. It is a slipshod method, but the only one practiced in the South. The bottom soil is the same the world over—alluvial, and rich. It is for the most part owned by planters and merchants who rent the land to negroes and poor whites, furnish them with a mule or an old "ironclad" horse, an outfit of a few old tools, feed for the animal and bacon, corn meal and molasses for the renter's family. The planters then mortgage the growing crop to secure their pay for supplies, and when the crop is grown it takes all the poor tenant has raised to pay the landlord for the supplies furnished him, which have been charged to him at not fifty, but one hundred per cent in advance of cash prices. This is cotton farming without any coloring.

Another difference the Northern farmer will find, is in the wells and water-courses. Well water is invariably found in a white quicksand that cannot be dug into more than eighteen inches. It may be scooped out deeper but will fill up again, leaving only a small depth of water, though this is generally clear and good. The water-courses or creeks run for six months, and sometimes more, but are dry the balance of the season. All creeks dry up at least three months in the year, and stock during those months have to drink the stagnant water left in low pools in the creek bed, or water drawn from wells. The climate is sure to tell on a family coming here from the North. Malaria in some form will manifest itself for one year or more, until the persons become acclimated. Some never can get acclimated, while others have very little sickness and soon stand the climate as well as natives. Of one thing I am sure—that a man, native or acclimated, has not the energy or ambition which a Northern climate will give him. I did not write this article to deter any one from coming to Arkansas, or in fact to any portion of the South or West. There are many advantages as well as disadvantages to be found in the South, but I would advise Northern farmers to go slow, and if they are doing well, to stay where they are. If a farmer is not satisfied, he will find as good openings in Arkansas, providing he has from five to ten thousand dollars, as in any other State or country. A poor man cannot do so well here as at the North, because wages are low, the conditions of health are against him, and it requires time and capital to make land productive in the South. The advantages presented to farmers of means here are: Cheap land, from one dollar to two dollars and a half per acre for unimproved land; unlimited stock range, thousands of acres of grass being burned every year; magnificent timber; peaceful and law-abiding neighbors; mild winters, and fruit of nearly every description. All kinds of vegetables are abundant, and in fact there is every element of success. A good home can be made if one has money enough, and uses it wisely. SUBSCRIBER.

A Montana "Round Up."

W. E. CATLIN, WHITE SULPHUR SPRINGS, MONTANA.

East of the Missouri River, which in the upper part of its course flows northward, lies the Belt Range of mountains, separating the Missouri Valley from that of Smith River—a small stream, also running northward and emptying into the Missouri River above Fort Benton. On the north side of Smith River Valley, at the foot of another range of mountains running east and west are the famous Montana White Sulphur Springs and the town taking its name from them—well known throughout Montana as a health resort and place of healing for rheumatism and chronic diseases generally.

This is the county seat of Meagher County—a very large county—and is surrounded by ranges of mountains rich in mineral wealth, as yet but slightly developed; but the town is already an outfitting point of importance, and the trade center of a wide region. Into this little valley open the only "passes" from Helena, Bozeman, and the Northern Pacific Railroad, at Livingston or Townsend, to the valley of the Mussel Shell, the Judith Basin and the mining camps in the mountains northward. To the southeast of the Springs lie a group of mountains known as Castle Mountains, among which are the sources of the South Fork of Smith River, flowing northward, of Sixteen Mile Creek, flowing westward to the Missouri, of some of the tributaries of the Mussel Shell, flowing eastward, and of Shield's River, emptying into the Yellowstone, southward, whose valley lies between "the Crazies" and the Belt Range of mountains.

Thus it will be seen that Smith River Valley is one of the most elevated in Montana, nestling among ranges of lofty mountains, five thousand feet above the sea, and considerably higher than the Missouri Valley. These physical features indicate also the relation of the Smith River Round-up to its neighbors on the Yellowstone, the Mussel Shell and the Judith. This little valley lies mainly from southeast to northwest. The ride of its round-up may be said to be from the Yellowstone River to the canon of Smith River, a stretch of one hundred miles or more from south to north; yet it is probably the smallest round-up in Montana, assembling ordinarily from twenty to twenty-five riders—more if any large sales of cattle have been made "to be delivered on the round-up." Its officers are chosen annually—Captain, Secretary, Treasurer, etc. At a time agreed upon, say May 20th, the "Spring Round-up," divided into two or three "messes," each with its cook and baggage wagon, tents, provisions, etc., assembles at a given point, say Moss Agate Spring, on South Fork, for the first night's encampment. Tepee and tent are pitched, and the cooks prepare themselves for their first supper in camp. Each rider has three or four horses, which are ridden by turns. These, with the wagon horses, are in charge of a "night-herder" and a "day-herder," who are responsible for their safe keeping. A light stove, generally of sheet iron, having an oven for baking, serves the cook's uses. Fresh meat, canned goods, spirits, vegetables, flour, rice, tapioca, sugar, salt, spices, etc., the best the local market affords, have been liberally provided. They live well, unless their cook is at fault. Early in the morning they are astir, breakfast is prepared and eaten, the horses are driven into a "rope corral," caught and saddled for the ride. Now look for fun, and see the "cayuses" plunge and buck! They cross Sixteen Mile, pass the low divide into Shield's River Valley, and down to the Yellowstone, it may be to meet the Yellowstone Round-up at a time agreed upon. Perhaps some, who have never seen a railroad, ride on seven miles to Livingston, "to see the cars come in."

Returning, they separate into squads, or ride by twos and threes, by the Captain's direction, over the valley and along each tributary stream, driving before them every "bunch of cattle" they see. All are driven up, and at evening those wanted are "cut out" and "held." The rest go free. All hands, the Captain included, take their turns regularly in herding "the bunch" at night. The "cutting out" is a stirring scene—a time for riders to show off themselves and their steeds. There is often hard and reckless riding. The whole "band" is surrounded by all the riders and "bunched." Then three or four riders go out and separate an animal, or a group of them, and drive them out and away, retaining cattle of their own brands until at length these only remain. This "cutting-out" is done at the end of each day's drive. Thus they ride through Smith River Valley and gather all into their "corral" in the upper part. Here a halt is made for "branding." The drive is corraled and a part driven from the larger corral into an inner smaller one. A fire has been made, the irons are heated; two men ride into the inner corral and rope each a calf by the neck or heels. The first caught is drawn by the lariat into an open space. A "wrastler" throws it upon the ground, right side up. Its heels are caught in a loop and drawn back, the fireman passes the branding iron called for, the brander seizes it, there is a hissing and a smoke and the smell of burned hair and scorched skin, with a howl of pain and fright. The "knifer," too, has done his work, on ear, throat or dewlap, wattle, or elsewhere, and the victim is let loose. Another is by this time caught, "wrastled" down, and undergoes the same process, which is repeated until all are branded. Larger animals and "brands" that have been sold are passed through a narrow "shute" back into the larger corral, and branded and "vented" as they pass. The "vent" is any brand or mark which indicates sale and transfer, perhaps the seller's brand inverted, or applied elsewhere as a proof of sale and transfer. Now and then a calf or young animal is found having no brand, and separated from its dam, so that its owner cannot be determined. This is a "Maverick." It is sold by the round-up and branded by the buyer, its price going into the treasury of the round-up. Calves of brands not represented by an owner or agent in the round-up are marked and branded for the owner at a charge of two dollars per head, which also replenishes the treasury. Beeves, milch cows, and any others wanted, are held for, or driven away by their owners. The rest go free on the range.

Tents are struck again, the riders are off for another part of the range, and wagons and loose horses are driven on to the next encampment. So they sweep on down the valley, or turning up North Fork, look that corner over as far as the canon of the Mussel Shell, and the skirts of Castle Mountains, driving all they find to the next corral. Then on down the valley, past old Fort Logan to the canon of the river, doing much hard riding, getting many a fall—over a fallen cow, or by a horse's stepping into a "badger hole," or slipping and falling in making a sudden turn—bruises, sprains, and sometimes broken bones or worse. They will have done well if their task is finished in time to celebrate the Fourth of July at home.

The Fall Round-up usually starts out September 20th, branding and marking, gathering beeves sold or wanted for market, with cows, calves and other stock which owners may wish to retain or to keep in enclosures for wintering. Many now separate the earlier and larger calves from their dams and wean them. Snow generally flies, and

sometimes storms, often of great severity, come on before the Fall Round-up has finished its work.

The Mussel Shell Round-up is a much larger body, comprising from one hundred to one hundred and twenty-five riders, all of whom are under one Captain, divided into a dozen "messes," with from four hundred to five hundred horses and a long train of wagons. Starting as early as May 10th, sweeping the valley and its tributaries, perhaps as far as the Big Bend of the Mussel Shell, by the first of August they have done their work and returned to their homes for a brief rest of two or three weeks. Then they must be off again for the Fall Round-up, going over the same ranges, gathering and branding calves, picking up beef cattle for sale and shipping East. A long, tough job is theirs, and fortunate are they if they escape severe storms and cold and without loss of life or limb.

Of other round-ups I need not speak. Each occupies its own district, has its well-defined limits and its own compact organization. The larger ones often have their riders constantly patrolling the ranges, but the work of all is essentially the same. The cook on Smith River Round-up receives fifty dollars per month; the night-herder two dollars and fifty cents per night; the day-herder from forty to fifty dollars per month; riders ordinarily average about forty dollars per month. Experts will often get more—especially if they are good "ropers."

The snow is melting, the ridges and some of the bottoms are bare, and stock, cattle and horses are "rustling" for themselves, and we hope that they will need no more feeding to carry them through.

Among the Farmers of Louisiana.

The crops to which the soil and climate of the "Pelican State" are adapted are neither numerous nor varied. Over a large part of the State, indeed, the ordinary agriculture of the Southern States may be pursued, and where it will pay, a kind of mixed farming followed. That is, the products of the soil may be corn and forage to be fed to horses, cattle, pigs, and sheep, in addition to cotton or perhaps other purely commercial crops. Large sections are so peculiarly adapted to sugar, rice, and cotton, that it is considered profitable to devote the land almost exclusively to these. In ante-bellum times, to use the common expression, when these plantations were worked by slave labor, it was most profitable to conduct large estates. The same is, in a measure, true at the present time. The work has to be done at definite times, and a strong force is often necessary to save the crop. This is true at harvest time, at any rate, and often at other seasons. In case of threatened danger from floods or crevasses, when the river breaks through the levees which confine it to its channel, and lays the country under from two to five feet of water, a strong plantation force will throw up small protection levees, clear out ditches, and thus prevent damage to which the small planter would be subject.

The Labor Problem.

It is of course very important for the planter to have labor which he can depend upon to be faithful and diligent. Before the war he had certain and absolute control of his labor. Now it is much less satisfactory. The negroes are independent, and much less industrious, and are as a whole, probably not so happy and contented during this transition period. Still, they value freedom more than anything else. At the same time, annoyed as the employers are by uncertain, independent, lazy hands, they too would not go back to the slave system if they could, to-morrow.

Now the negro laborer is his own owner. He takes the risks of life and health. He was worth from fifteen hundred to three thousand dollars as a chattel. Now he can be hired for from sixty to eighty cents a day, with a cabin or sleeping quarters, and to board himself. Now the planter's capital is invested in improved machinery: then it was largely tied up in black humanity. The care which the planters took of their servants is well illustrated by the fact that, when any work of especial danger was to be undertaken, slaves frequently were not allowed to do it, but some poor white man was hired and well paid for the job. Trees around the house were valued for their shade, but often grew so tall as to endanger the house or its inmates by being blown over, or from having limbs broken off during high winds. The periodical topping of these trees was always a job for free men, white or black, it being too risky for the slave.

Considering then all the cost of slave labor—the interest on the investment, the liability to loss, the cost of food and housing, etc.—it is easy to see that, even with the present disadvantages, the plantations may be more economically worked by freedmen who receive or should receive fair wages.

The cost of living to the negro population is very light. The swamps and the bayous teem with life—fish, crabs, crawfish as large as small lobsters, terrapin, etc. Game is abundant, and I could not learn that any game laws were enforced. Berries and other fruits abound in their season. Pigs get their own living in the woods, and chickens are abundant, but how owned I did not inquire;—certain it is that the formality of ownership is no bar to the enjoyment by many negroes of pork and poultry, which are very common viands.

Small Farmers.

I conversed with several small farmers—men who either own or hire plantations and superintend the work. Before the war one owned a farm of a hundred acres or more, situated between or near large estates, the proprietors of which, as was usually the case under similar circumstances, did not like his presence so near, for his methods were different, his servants, some owned and some hired, differently treated, and he himself always present to superintend his own work. Hence he was constantly subjected to annoyances: his cattle would be driven out of the wood-pastures, his servants induced to leave him, and he himself urged to sell. Now he finds he can farm his own land without molestation. He can hire at reasonable rental as much other land as he wants, and although he cannot get so much accomplished for a "day's work" by each hand, yet on the whole, he is much better off, and makes a bale of cotton or a hundred pounds of rice at a lower cost, and his own position is much more satisfactory. As a natural result, this class of men is increasing in number. The aristocracy founded upon the ownership of slaves is broken down, and there is clearly being established upon its ruins an aristocracy of industry and thrift. Education is being appreciated, old bankrupt estates are being divided or sold entire to northern capitalists, and other changes are going on beneficial to the country.

The small farmers, being unable to provide for themselves sugar machinery, rice-mills, cotton-gins, and presses, dispose of their cane outright; they take their cotton and rice to the gins or to the mill, and receive the product, the cotton in bales and the rice in shape for market. Railroads have been greatly extended within a few years, and the cotton-gins and presses are situated, where possible, near stations, so that hauling to the stations may be avoided. Thus matters are gradually shaping themselves to be convenient for men of moderate means, which of course promotes the wealth, and increases the population, the business, and the intelligence of the community.

Draining Sugar Cane Lands.

I learned of an important experiment in underdraining undertaken by a northern capitalist upon one of those immense sugar plantations which line the banks of the Mississippi throughout a good part of the Louisiana lowlands, and I had the pleasure of inspecting the work with the proprietor. The principal facts may be briefly stated. Some eighty acres have been thoroughly underdrained. This is, however, but a very small portion of the sugar-ground. The drains were laid three and a half to four feet deep, and thirty feet apart. When water accumulates outside the protection levee, great draining-wheels are set in motion, and the accumulations of water are rapidly thrown out. These wheels are like the ordinary breast-wheels for using the power of low heads of water. Applied to draining, the wheels are made to revolve by steam power in the opposite direction, and raise the water to the top of the "breast"—about as high as the axle of the wheel—where it flows away. Louisiana is subject to, or is blessed by, an immense rainfall. This, if I am rightly informed, amounts to some five feet in the course of the year. After a heavy rain the drains run full several days, and though the surface may not seem much drier than upon the undrained land, yet the amount of water in the soil is greatly lessened. The result, as shown by the product of cane, is truly surprising. All the land was treated as nearly as possible in the same way, so that the advantage might be clearly seen. The undrained land, or rather that from which the water was drawn off by open drains, yielded only fifteen to twenty tons of cane to the acre, while upon the underdrained land it averaged about thirty-five tons, and in some cases went to forty-three to forty-five. It is, of course, a pertinent question, What is the relative sugar product of the cane raised upon similar land when there is such a great difference in the amount of cane produced? From all sources I secured about the same reply, namely, that the sugar product as judged both by quantity and quality depended primarily upon the ripeness of the cane. It is probable that the small crop would ripen first, for in that latitude the cane does not go to seed, and hence is cut before it attains its full growth, though not before it reaches a certain degree of ripeness as cane. The time of cutting being regulated more by the season and the danger of frost than by any other consideration, it may well happen that the light crop will be the ripest. Yet as the cane on the drained land can usually start earlier and may be more thoroughly and regularly tilled, it is by no means clear that the heavy cane will not also in some years contain the most sugar. At all events the difference is not obvious either by inspection or in the making of the sugar, but must be determined by experiments which involve accurate weighing. W.

Hints for the Hay-Field.

This, all through the Northern States, is the haying month, and in the first days of June it is timely to turn our thoughts to the first of the harvests. A good deal has been learned about hay. We know that the earliest-made hay is the best. We know also that the hay which is made with the least exposure to the sun is far better than that which is dried by the heat and the wind until it breaks into dust under the foot. Thousands of farmers, who first read of hay caps in these columns many years ago, have learned that they will save their cost every year, if properly used. Experience has taught this lesson. A few short and pithy rules for making the best of hay might just now be repeated, as follows: Get the mowers into good condition, without a day's unavoidable delay; watch the grass closely, and cut it before the seed is formed—just when the blossom is fading. Cut it as soon as the dew is off, but not while it is damp. Before the evening dew falls upon it, rake it up and put it in cocks holding about three hundred pounds each. If rain threatens, cover the cocks safely with hay caps. Take in no hay until all has been cut and cocked. The hay will cure in the best manner in the cock, and it may stay a week without harm, if covered with the caps. When ready to draw it to the barn, uncover the cocks and throw them over and open them. Have one person doing this, while the others are loading and drawing in. Do not stack it, but place it under a tight roof, if it is only a barrack, open at the sides. Uncover only what can be drawn in in one day. As soon as the field is clear, give it a top-dressing of compost or some artificial fertilizer; but do not turn the cows upon it—it would pay better to buy some hay from a neighbor. This last rule applies to the next year's crop, but it is rightly placed here, because next year would be too late to use it. It is of the greatest importance, and should by no means be omitted. Finally, gather the hay caps to-

gether; dry them, if necessary; lay them evenly one upon another; roll them up; bind them in the roll, and store them in a dry place where no mice can gnaw holes in them. It would be an excellent thing to steep them in a solution of alum and sugar of lead, to preserve and make them waterproof.

Applying Fertilizers to Corn.

It is quite reasonable to suppose that plants can be gorged with food as animals may be, and that injury may result from it. This is quite true as regards corn. The corn plant has a long season of active growth. It requires about one hundred days for its maturity. If all the food which is required to mature the plant is added to the soil in a soluble and available condition at the planting, a large quantity may be lost before the plant can utilize it. Soluble fertilizers diffuse themselves in a moist soil with great rapidity, and are quickly carried off by the drainage water into the subsoil. Sir J. B. Lawes has noticed the nitric acid of nitrate of soda, which has been applied to the surface soil, escaping in the water flowing from the drains, in forty-eight hours after the application. If then, six hundred pounds of this fertilizer should be applied to the corn crop before the sowing of the seed, it will begin to be lost before a single root has been formed to arrest its escape. This fact is given only as an instance of how fertilizers may be lost by misapplication. At the best, an excess of fertilizing material given to corn in its early stages, forces a rank growth of stalk, and the plant food is exhausted before it can be converted into grain, which is the most valuable part of the crop. During some years past, we have been growing corn under a new system of fertilizing, which is to apply the fertilizer at intervals, as after each time of cultivation, instead of before and immediately after the planting. The effect has been to notably increase the yield of grain, and decrease the growth of stalk. By this method, eighty bushels of grain per acre have been produced, and in growing sweet corn for sale, fine, large, and well-filled ears are secured. The fertilizer is dusted along the rows before the cultivator is used, or immediately after, and the first shower carries it down to the roots. The same method of applying fertilizers has been used for root crops with favorable results.

Care of Horses' Feet.

Horses in civilized lands suffer more from ailments of the feet than from any other cause. The feet of a horse are subject to many injuries, both from bad shoeing and from ill-kept roads, and it is important for owners of horses, to study well how these causes of diseased feet can be avoided. But in the consideration of this question there are some points not well understood. The "London Stockkeeper" gives a statement that a horse weighing sixteen hundred pounds, when drawing a load, bears a weight upon the feet of two tons, the extra pressure being caused by the downward force of the act of drawing. Now, an average horse's draft-power amounts only to a forward strain of one hundred and fifty-seven pounds. As the horse is only exerting this forward force by pressure upon the collar, it is clear, the feet cannot press with any more force upon the ground, so that the above explanation of the cause of injury to the horse's foot, is imaginary. It is not the force exerted by work at all. A wild horse, galloping at the top of his speed, presses upon the ground with his feet more than a horse moving a ton in a wagon upon a road at the rate of two miles an hour; and yet wild horses have excellent feet and are never lame. But they have a choice of a smooth path, and have no blacksmiths to cut away the frogs of their feet, and so deprive them of the very means nature provides for the protection of the foot. If the roads were kept in good condition and free from loose stones, and the frog of the foot were never pared, horses would rarely suffer from foot-lameness. Frog-pressure expands the heels, toughens the horns, cures corns, and does much toward giving a horse sound feet.

Bee Notes for June.

L. C. ROOT, MOHAWK, N. Y.

Beekeeping, more than all other pursuits of which I have any knowledge, requires prompt action. In many departments of agriculture, what is not completed one day, may be finished the next, with little, if any loss; but if one hour is lost by the bees during the time of any class of blossoms, it can not be made up. In most localities, the period of honey-gathering is short. The necessity for having all things ready at the proper time, will be evident. The success, during this first honey-producing month, will depend largely upon previous care and management, as well as upon that of the present. It is very essential that at this time, all colonies expected to store surplus honey, should be very populous. One very populous colony will store more honey, in proportion, than a half dozen weak ones. Half a bushel of bees in one colony, will gather much more honey, than six colonies having but three quarts each.

Many beekeepers make a great mistake in dividing their stocks to increase their numbers, too early in the season. The injunction, "keep each colony populous, and supplied with a good, prolific queen at all times," should be generally observed. What we need is, better stocks, rather than a larger number. Beginners should study the condition of the interior of the hive, and and learn what will tend to increase the populousness of the colony. The bees that make up the colony at this season, are a queen, a quantity of drones, or males, and the workers, which are undeveloped females, sometimes called neuters. If the hive contains too much drone comb, a useless number of consumers will be reared, and the space which is thus occupied, will be lost for rearing working bees. From one-third to one-half of an ordinary-sized frame of drone comb, is sufficient for each hive. I prefer a small piece in each of three or four frames, making in all about the amount named.

With a good movable comb hive, all observations can be made accurately. In most locations, strong colonies will commence storing surplus this month. Such should be promptly supplied with boxes, as soon as the bees will occupy them, if box honey is to be secured. If the surplus is to be taken with the honey extractor, empty combs should be added. The advantage to be gained by supplying a good number of empty combs for extracting, can only be appreciated after a trial. For adding these combs, I prefer tiering up the hives one above the other, two or three in hight, as the strength of the colony will warrant. Those who have no surplus combs, should fill frames with comb foundation. The cells will soon be drawn out, and honey stored in them. Questions with regard to any point in the management of bees, sent to the editors of the *American Agriculturist*, will receive prompt attention.

Some Seasonable Apiary Matters.

TRANSFERRING BEES.—In the transferring of bees from box hives to those with movable combs, the combs are cut out, and fastened into the frames by means of thorns, wires, strings, sticks, or other similar contrivances. Combs in box hives are usually crooked, and built in such shape that it is generally impossible to fill a frame with them without making a patched-up job. A better way is to drive the bees from the box hive into a new hive, furnished with frames of wired foundation. If honey is coming in plentifully—and it ought to be at this season of the year—it will require only forty-eight hours to change the sheets of foundation into beautiful, straight, worker combs. Twenty-one days later, all the worker brood in the old hive will be hatched, and a new queen beginning to lay, when another swarm can be driven from it. The new queen, not having been raised under favorable conditions, should be killed, and the bees united with the swarm first driven out, when, if there is any honey in the fields, that colony will pile up the surplus. If increase is more desirable than surplus honey, the second swarm can be treated the same as the first, except that it must be given a good queen in place of its poor one. Now is the time to split up the "old gum," from which may be taken a nice lot of extracted honey and some combs to melt up into wax for making more foundation.

W. Z. Hutchinson writes, describing a new reversible frame. Many new kinds of reversible frames have been invented during a few years past. One of the best of these is one invented by Mr. James Heddon, of Michigan. Figure 1

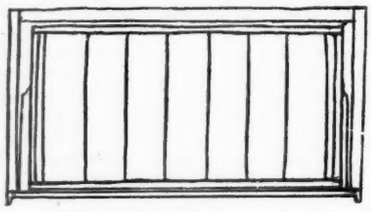


Fig. 1.—REVERSIBLE FRAME.

shows this frame in place, as it hangs in the hive; figure 2 shows it partly reversed. The frames shown are "wired," ready to be filled with foundation. The frame is of wood, and turns upon wire nails driven through the lower end of the arms. Bits of the comb and propolis give but little trouble, as the shear-like action of the frame, combined with that of the arms, cuts away such obstructions. The large openings between the lower part of the frame and the sides of the hive,

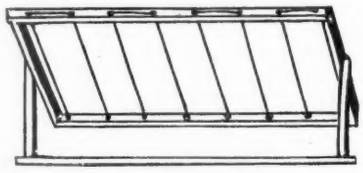


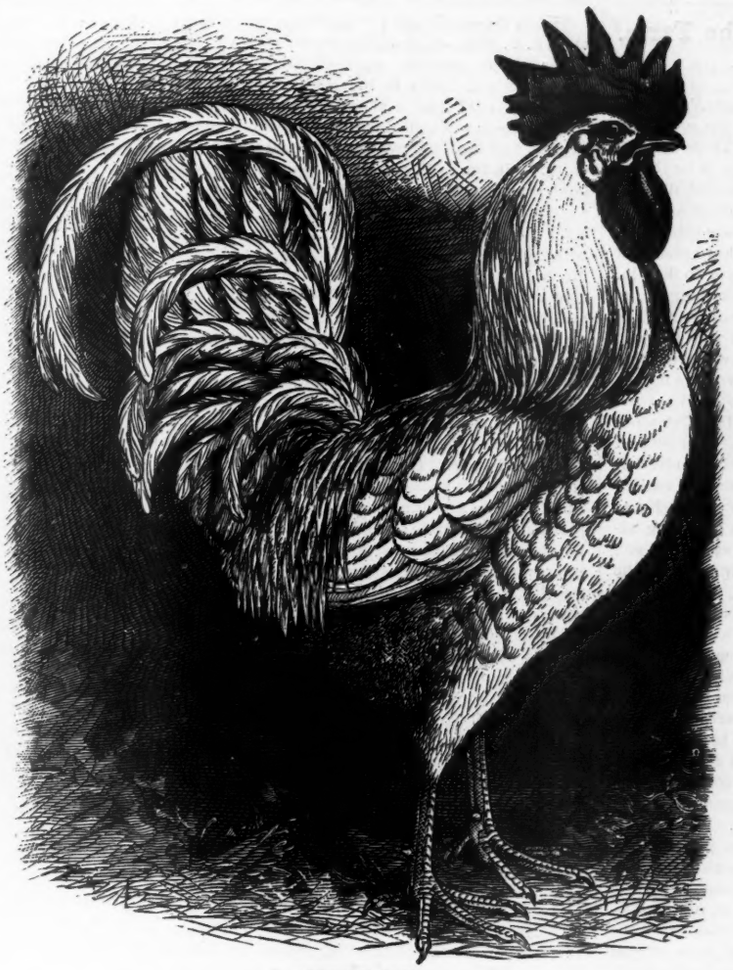
Fig. 2.—FRAME PARTLY REVERSED.

greatly facilitate the removal of the frame, and there is not the danger that the bees will fill these spaces with comb that there would be were they in the upper part of the hive. In time we shall have a reversible hive.

Poultry for the Farm.

The continual advocacy of fancy poultry for common farm use is an error. The poultry papers, and most agricultural papers, advise the breeding of certain pure breeds, as if they possessed merits far superior to the barn-door fowls, and common poultry. This is a mistake. No one advocates the use of thorough-bred horses, well bred trotters, pure Percherons or Clydes, pure-bred pigs, or sheep, or cattle, to the exclusion of common ones, but farmers are urged to improve their common stock by breeding-up, by gradually introducing better blood and breeding, with some definite aim. Thus our common mixed sheep, which are regular breeders, good mothers, and have plenty of milk, are crossed with pure rams of one of the established breeds. If size is wanted, with long wool, the Cotswold is perhaps employed; if the wool is to be improved in fineness without so much reference to the mutton, one of the Merino breeds will be selected, while if early lambs of fine quality are desired, one of the Down breeds is chosen by the raiser. This is precisely the course which should be followed by farmers in poultry raising. The

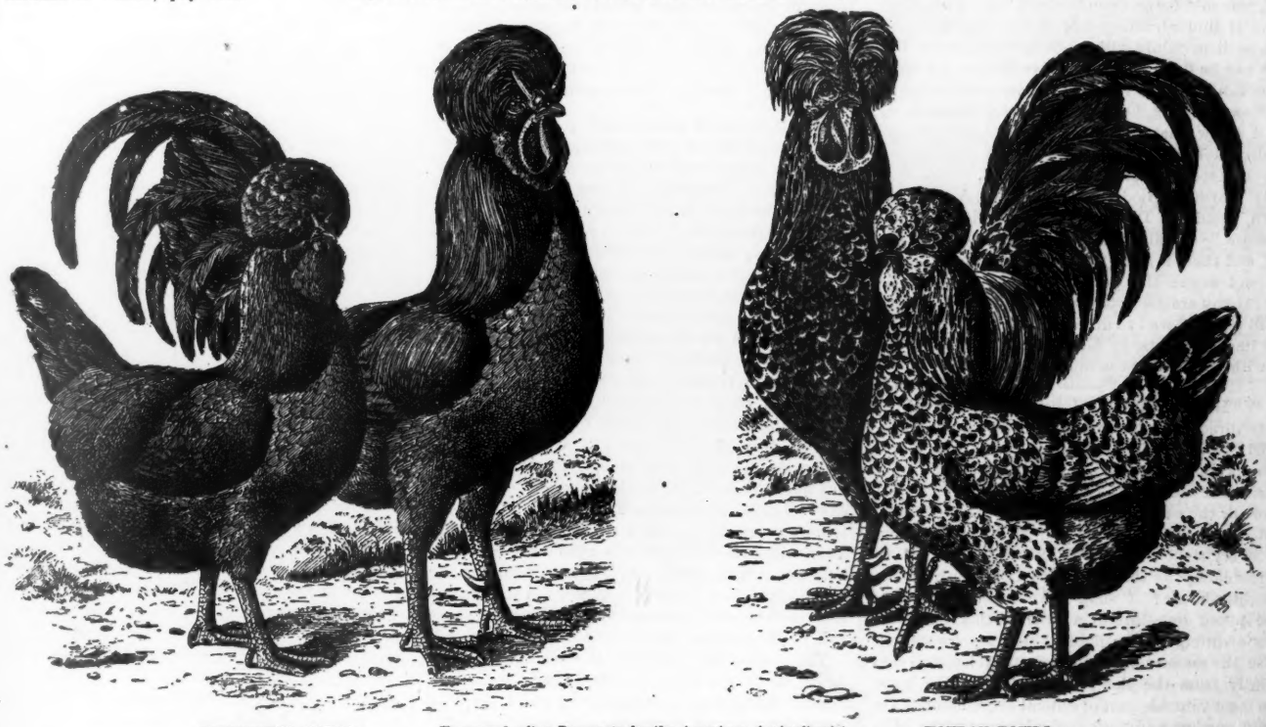
advantage of grading up common poultry is, however, not so profitable in most cases as cross-breeding. This is, properly, the interbreeding of two pure varieties. We have, however, usually no pure breed of fowls upon the farm, and of course wish to utilize those which we have. Therefore the first thing to do is to grade up the flock. After two or three years, when they have the looks and qualities of pure-breds, the hens may be crossed with cocks of another breed, and then most of the advantages of cross-breeding will be realized. In this use of pure-bred cocks which we recommend, no male bird should run with the same flock more than two years. If he is healthy and vigorous, and his progeny of the first year take strongly after him, in form as well as feather, he may well be kept the second year to run with pullets of his own get. After three years the blood of the original flock will be reduced to one-eighth; after four years to one-sixteenth. One has a flock of hens which have been carelessly bred, and no fresh blood has been introduced for years. They are small, hardy, active, fair layers, good sitters and mothers, and get their own living all summer—but the garden suffers. How can the flock be improved? This, we conceive, is the question which may be put by ninety-nine in a hundred of the keepers of hens in the country. The answer suggests itself, but first we should know whether eggs, or broilers, or full-grown fowls for market (chickens in autumn or winter) pay best.



LEGHORN COCK.

Reproduced from the English Live Stock Journal for the American Agriculturist.

Hamburghs lay many but small eggs, while all are persistent layers of beautiful white eggs. The half-bloods, as a whole, will take after the pure breed in a good measure, and in so far may be said to be an improvement upon the old stock. The second year the three-quarter bloods will closely resemble pure-bred ones; some will only be distinguished from pure-bloods by an expert, while others will show their dung-hill origin very clearly, and yet, as layers, these may be the very best. So improvement goes on. The flock will in two or three years assume the appearance of "fancy" poultry of the breed selected with which to produce the improvement. The question naturally arises, Will they be improved?—be better and more profitable than they were before? Perhaps not for all uses,—but as layers, yes. The hens will lay more eggs; they will be less inclined to sit; if they sit at all, they will probably be broody only for a few days, and as producers of eggs, no doubt the flock will be more satisfactory. Should one of the French breeds have been selected—say the Houdans or Crevecœurs—the change and improvement in the flock will be very marked. As to the number of eggs, a flock crossed and graded up with Leghorns will surpass them, but the eggs of the French grades will exceed the others in size and possibly total weight. Besides, the birds will be larger, and very much superior for the table. In fact, were one to set out to grade up a flock of common fowls to produce the best table fowls for autumn and winter, he could hardly do better than take the Houdan or Crevecœur, which are large, have superior flesh, white skins, and are persistent layers of large white eggs. They are, however, less hardy than the Leghorns.



CREVECŒUR FOWLS. *Engraved after Bungarts for the American Agriculturist.* HOUDAN FOWLS.

The farmer must treat his flock of hens exactly as he would his flock of sheep or his herd of cows, or other stock—that is, secure the use of full-blood males having the desired characteristics. Thus, if he wishes eggs, he will buy cocks of some *one* of those breeds famous for the number of eggs the hens lay. Size and beauty of eggs may be an object, or simply a large number may be most desirable. The French breeds and the Spanish usually have large eggs; Leghorns, eggs of medium size;

Walks and Talks on the Farm.

New Series.—No. 12.

"We have had an awful winter here," said the Doctor, "and it is delightful to hear the robin sing once more and see the green grass. There is much sorrow and sadness in life, and happy is he that is blessed with good health and a contented disposition, with a willingness and ability and opportunity to work. Forgetting the things that are behind, let us press forward."—"We certainly have plenty of work to do," said I, "and short time to do it in. We have practically no spring. We jump from winter into summer. On Easter Sunday, April 5, we went to church in a sleigh. Last year I sowed celery seed March 20. This year we could get nothing in, not even early peas, before the middle of April. Nevertheless I hope for a good season. The best corn I ever grew on the farm, was not planted till the first week in June. Of course, I prefer to plant earlier if the season will admit; but if the season is late, we can plant late with reasonable expectations of getting a fair crop. Every spring, however, only demonstrates anew the advantages of underdraining."—"You say this," said the Doctor, "notwithstanding your visit to the cheap lands of the West, last season. The Deacon thought you would come home cured of what he calls your craze for underdraining. He thought, when you had traveled over millions of acres of good land that could be bought for five dollars or less per acre, you would doubt whether it would pay to expend twenty-five dollars per acre in underdraining."—"I have seen nothing to change my views on that subject. And what is far more important, it seems that intelligent, practical farmers in Ohio, Indiana, and Illinois, are year after year underdraining more and more land. There is far more underdraining done in what we formerly called the Western States, than with us. If it pays there, it will certainly pay here. I think even the Deacon will admit, when land needs it, underdraining, when properly done, will *more than double* the value of the land. The Deacon has been offered one hundred and fifty dollars per acre for his farm, and another farm in the neighborhood, on a back road, was sold for one hundred and forty dollars per acre. If underdraining will double the value of land, as it certainly will, when needed, and if the work can be done for twenty-five dollars per acre, where can money be invested to better advantage?"—"How you talk," said the Squire; "you know, and I know, that the farm could not sell for one hundred dollars per acre more after it was drained than before."—"Perhaps not," I said, "but it is really worth a good deal more."—"A thing is worth," said the Deacon, "what it will bring, and no more."—"This," said I, "is the popular notion, and there is some degree of truth in it; but I will not argue the point. This, at any rate, is true: if you are going to keep the farm, and work it, it will pay you well to drain and make other necessary improvements, so far as you can afford to do so, without running too much in debt."

"W. H. S." writes: "I have a small farm of thirty-three acres, two miles from the city of Aurora, Ill., from which I haul a good deal of manure. There is a slaughter-house near the farm, and I am to have the manure, if I keep it well supplied with straw for the cattle and some twenty head of hogs. Will it pay to haul coarse, unrotted manure from the livery stables and throw it into the pig pen, to be mixed up by the hogs with the refuse of the slaughter-house? I shall have to draw the manure about one-third of a mile further than if I drew it direct to the fields."—On my own farm, I use the manure from the horse stables, and frequently from the sheep sheds, to bed the hogs. The most valuable part of animal excrements is the liquid portion, and hogs void a large quantity of it. This goes into the horse manure, and adds much to its value. Hogs fed on slaughter-house offal, and bedded with horse litter, with more or less flesh, blood, bones, and other animal matter in addition, should afford manure that will make corn fairly jump and cabbages laugh at the green worms.

"Here, Deacon," said I, "is a letter that pleases me. F. F. Fish, of New Hampshire, writes to the editor of the *American Agriculturist* as follows: 'In Walks and Talks in the March number, Mr. Harris says: "I think I am safe in saying, that, as a whole, there will be little profit in applying nitrate of soda to wheat, barley, oats, rye, and other late crops." In the April number, in reply to Mr. Newbold, page 139, you say: "If he wants to be sure of a big crop of oats for hay, let him sow broadcast three hundred pounds of nitrate of soda per acre, before drilling in the seeds." Does your advice to Mr. N. agree with Mr. Harris' opinion of the profitable use of nitrate of soda?'"—"I do not see," said the Deacon, "what there is in that to please you?"—"Simply this," said I, "it shows that people read the paper—read the whole of it, and not one month only, but the next month, and recollect what they read. A writer, to do his best, must feel that what he writes, is read, just as a speaker needs to see and feel that his audience is listening to what he says. In regard to the two articles, there is no contradiction; I wrote both of them. It is certainly true that, at a sale at average prices, there is little profit in using nitrate of soda or other nitrogenous fertilizers for wheat, oats, rye, etc. If wheat would jump up to one dollar and a half per bushel, and stay there, we could then use nitrogenous manures with decided profit."—"But," said the Deacon, "why did you tell Mr. Newbold to use three hundred pounds of nitrate and three hundred pounds of potash for oats, if it will not pay? That is the question Mr. Fish wants answered."—"In the first place I did not tell Mr. N. that it would pay. I simply told him, if he wanted to be *sure of a big crop* of oat-hay, he should use nitrate of soda and potash. A man keeping cows near a large city is frequently so desirous of getting fodder, that he does not care if it does cost a little extra. But in point of fact, I think my advice was good, and that the nitrate and potash would give a sufficiently large increase, to more than pay. The point is this: Nitrate of soda and *potash* would be likely to give a great growth of straw—and Mr. N. wanted oat-hay, not grain. It is a well-ascertained fact that a plant, if short of potash, will produce grain, but very little straw. The addition of potash may give no more grain, but it would produce a large growth of straw, and if straw is wanted, its application, together with nitrate, might pay well; but potash *alone* would probably do little good. I hope I make myself understood. If not, I will try again."

"Speaking about plants shading the land," said the Doctor, who had been reading the newspaper, "there is some truth in the common notion that the shade is beneficial. If the ground is moist enough, the shade favors nitrification. But growing plants evaporate so much water, that the soil soon gets so dry that nitrification cannot go on. In Mr. Lawes' experiments, a single clover plant, from May 25 to June 28 evaporated one thousand four hundred seventy-three and one-half grains of water. If the plants occupied ten square inches each, there would be six hundred and twenty-seven thousand two hundred and sixty-four plants on an acre—each plant evaporating one thousand four hundred and seventy-three and one-half grains per day. In other words, an acre of seed clover in June evaporates through the plants, fifteen thousand five hundred and forty-seven pounds of water per day! Talk about shade! Talk about our puny attempts at watering! A few weeds, or plants of any kind, will evaporate water on even a small area of land faster than a man can carry it. He had better spend his time in killing the weeds, and at the same time use the cultivator and secure an inch of loose soil on the surface, which will serve as a mulch."

The Deacon smiled, but said nothing. He had heard the Doctor make the same remark again and again. Still, what he says is true, and I think all good farmers and gardeners are more than ever before acting on the idea. They are certainly cultivating their land more thoroughly than formerly. With some exceptions, our farmers now keep their corn and potato fields remarkably clean. I was going to say, beans also, but I am not so sure about that. Many bean fields are very far from being as clean as they should be. "One reason for this," remarked the Deacon, "is because the beans do not afford shade enough to hold the weeds in check."

"I should think," said the Doctor, "that the farmers on the new, cheap land of the Northwest would go into the raising of beans on a large scale."—"When I was in Minnesota and Dakota last fall," said I, "the same idea struck me. The soil and the climate are favorable. But possibly there would be a difficulty in procuring the necessary labor to pull the beans."—"If they should grow the crop on a large scale," said the Doctor, "they would very soon have a machine to pull the beans, or, possibly, to thrash them where they stand. We ought to raise beans enough to supply the world. As matters now are, beans are grown on a comparatively circumscribed area, and any trivial cause may greatly enhance prices and thus effectually stop the foreign demand. Some years, beans are down to a dollar a bushel, and then up to three dollars per bushel. Of course, such extreme fluctuations seriously interfere with foreign trade. But let the Northwest take hold of the matter, and we should have a large area to draw from, and steadier prices and a larger trade would be the result. Beans are the most nutritious of all vegetables. They will keep from year to year. They do not need grinding into flour, like wheat, and moreover can be easily transported any distance. Let us have more beans—especially for export."

"Is it too late to sow seed for winter cabbages?" asks the Doctor. "Mrs. Miller sowed the first of May, and she has almost always wonderful success."—"She is certainly a remarkable woman," said the Deacon; "I drove past her place this spring, and she was digging the finest crop of parsnips I ever saw grown. It was nice, sandy land, and the parsnips came out as straight, smooth and round, as if they had been turned in a lathe. I asked her where she got her seed. 'I raised it myself,' she said; 'I raise it every year. It is not much trouble.' She did not tell me so, but I thought the crop would yield at least five hundred bushels per acre, and she was getting sixty cents a bushel for them. The profits on the crop, after deducting all expenses, would more than pay for the land."—"Parsnips and ruta-bagas," said the Doctor, "are two good crops for the farm garden, as distinguished from the ordinary suburban market garden. They can be grown on cheap farm land—provided it is made rich, and clean, and mellow. It is not necessary to be close to markets. But you are not answering my question about cabbage seed. Is it too late to sow?"—"Not at all," said I, "you can sow such varieties as Fottler's Drumhead, and Short-Stem Flat Dutch, until the first of June, but you should push them right along. After the first of June, in this section, for winter cabbages, it is best to sow Winningstadt, or Henderson's Early Summer. The reason Mrs. Miller sows so early, is that she probably has a large, late variety of her own, that requires the whole season to grow in."—"If I had had her seed last year," said the Deacon, "it would have been a hundred dollars in my pocket. It is curious that the seedsmen of the world cannot raise as good parsnip and cabbage seed, as a poor German widow, on a little farm in the country, nine miles from the city, left with a small family of children, and a rapacious creditor trying to get the place away from her."—"Of course," said I, "they can raise just as good seed if they would take the necessary pains, but for some years past the competition has been so severe, and seeds are so cheap that no one could afford to raise really good seeds. Good seeds are costly, and the grower can not get pay for his care and labor. But there is a better time coming. Our Experiment Stations are doing a good work in testing seeds and varieties. They not only give valuable information, but their tests are a check on seedsmen. Such tests as those given in the last Annual Report of the Ohio Agricultural Experiment Station, will make a careless seedsman wince. But there are worse things about the seed business than sending out old seed that will not grow. A lot of poor cabbage seed that will all grow, may not produce one good head in a hundred."

A Farm Rat Trap.

D. Z. Evans sends us a sketch of a rat trap, of which he says: This is made on a rather extensive scale, as the body of the trap is a barrel; generally an old slop barrel, on account of its attractive odor. It is filled, to within about six inches of the top, with water; on the surface of this is carefully strewn hay-chaff from the barn floor; upon this is spread a thin layer of bran, with a few grains of corn to make it look more inviting. A small "tilting-board" is affixed to the edge, as

FARM RAT TRAP.

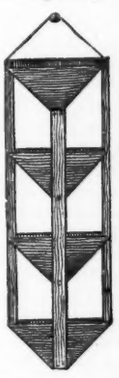
shown in the engraving, which will keep its position when not too heavily pressed on the shorter end. When a rat steps upon it, off he slides, and is drowned. The trap, if set in the barn or elsewhere, must stand where the rats will readily reach it from other barrels, boxes and the like. We have caught many of the "old sharpers," in this way, which were too wary to be enticed into a common trap.

Making Both Ends Meet—Closer Economies.

How shall we make both ends meet? is a serious question in many farmers' homes. It is easy to say, by economy, but it is not so easy to work it out. Our forefathers kept but one fire, and around its cheerful blaze the family gathered. The back log in the ample fire-place warmed the room, which served for kitchen, sitting-room, pantry, and with a recess in one corner, for a bedroom for the old folks. Now two or more fires are considered a necessity. The kitchen stove must be kept going, and then in most farmers' families there is a "living room," a sort of combined dining and sitting room, which must be warmed. Stoves are required for both, and perhaps coal must be purchased. Often where there is a wood lot, the kitchen fire is made from wood. It takes a hundredfold more capital to warm a farmer's dwelling now than formerly. Well, what of it? We are trying to make both ends meet. The cost and repair of the stoves is a considerable item where there is a short income. Carefulness must be practiced to save expense. Make the stoves last as long as possible. Then we must cut our own wood and burn it where we can. In more than three-fourths of the State of New York the farmer can buy his coal for less money than he could hire his wood cut and drawn to his house and made ready for the stove. To save money, he must do the work without hiring, and if possible, sell wood enough to pay for the coal, which has become such a necessity and luxury. Our forefathers lighted their dwellings with tallow dips, and later on the candle moulds were invented, and a set did for the neighborhood, the thrifty housewives taking turns in making up the candles, after the farrow cow was killed and the tallow had been tried out. In very economical families, or where poverty haunted the fireside, the chimney blaze lighted the room, or a better light was had from pine knots. One of the ablest statesmen New York ever produced, Col. Samuel Young, educated himself by the aid of such a light. The brass candlesticks were the ornaments of the parlor mantel when not in use, and on public occasions they vied with the whale oil lamps as evidences of luxurious comfort. Our lighting, thanks to the bountiful earth and its kerosene, is the least of expenses, so we cannot cut down much on this, except we buy our oil by the barrel—then there may be a saving of eight or ten cents on a gallon, if we purchase the better kinds, and we should never get any others. The best are the safest. There will be some loss when we buy a barrel by evaporation and leakage, but it is a trifle and not equal to the bother and time spent in getting it by the little. Candles should not be entirely discarded, as they are best to carry about. Glass chimneys break easily, and where there is careless use, are quite an item of expense. The maple trees used to furnish the most of the sweets, but now money has to do it, except with a few praiseworthy farmers, who are wrestling with the problem of sorghum at non-paying odds, so far as an income is concerned. Our less nervous ancestors enjoyed a drink of hot pea or barley coffee, and suffered less than we do with sleepless nights and poor digestion. There was a saving, as well as health in their drinks, and the boughten tea was laid by for visitors. How true it is, that comfort and happiness are wonderfully of the imagination. If I, as a farmer, could only think so, when my hunger is appeased with plain and wholesome food, and I have a warm fire to sit by and the *Agriculturist* to read, and a comfortable bed to sleep in, I am just as well off, and should be as happy as Wm. H. Vanderbilt or any other money king. Why not? If I imagine that a Wilton carpet is necessary for my happiness, and a lot of gaudy stuff all around me, which I cannot have, then I can be so far unhappy and a fool. Many are so, no doubt; but the vast majority of farmers do enjoy their simpler and less bothering surroundings. We should be the happiest people in the world. When we make our wants less we will have less trouble. An old New York merchant said to me not long ago: "How nice it must be to pick a ripe apple from your own tree. I wish I could." Contrast this longing with the thousand sunshine and green field pleasures we have, more than city folks, and let us be content and happy. F. D. CURTIS.

Hanging Shelves.

To make the shelves shown in the engraving, take good, planed, inch pine stuff, cut out shelves one foot wide at the back (or eighteen inches if desired), and of triangular form; notch the ends at the back, to receive inch square pieces for uprights; cut off the ends at the front to receive a similar piece; when this is done, nail or screw the pieces together. Under the middle shelf a support or bracket should be fastened, to prevent sagging. Hang by wires or cords, to a strong nail or screw in the wall. The exercise of a little ingenuity and labor can make this bracket very ornamental. If hard woods (oak, walnut or ash) are used, the whole affair can be made much lighter, and still be sufficiently strong. If made of pine, stain.

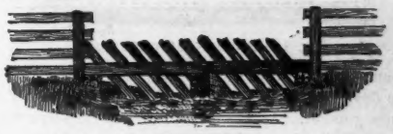


Chair-Bottoming.

L. D. E., Dansville, N. Y., sends us a good method of replacing the bottoms of chairs, which we give below: Two balls of "wool-twine" will be sufficient to bottom six chairs. Cut the old cane bottom from the frame, and clear all the holes from bits of cane, etc. Thread a long, stout darning-needle with a piece of strong twine (carpet-warp is best); knot the ends; loop this twine around the end of a piece of the wool-twine, five or six yards long, tie a large knot in the end, to prevent drawing through; begin by passing the needle up through the back corner hole at the left. Use only opposite holes, leaving the excess of holes at the front to be filled in crosswise from the sides, and run the twine forward and back until all the holes are filled; then work in the same manner from right to left. Every hole being filled, again work it from front to back, and lastly, from right to left, weaving, as in making cloth. Do not draw the threads very tight the first time over, or it will be very hard to weave the last two times across. As often as you finish a piece of cord, tie another firmly to it, leaving the knot under the frame. Finish by fastening a piece of the wool-twine around the top of the frame, and binding at each alternate hole by means of a piece of twine. Finally, go over the work, pressing the pairs of threads closely together, which will leave it plaited in large and small spaces, and greatly add to the even appearance of the work.

A Freshet Fence.

H. C. Thompson sends us a diagram of a fence that has been adopted by the farmers of his vicinity, where sloughs pass through the farm. The materials

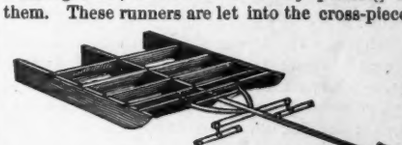


A FRESHET FENCE.

used are square-hewn timbers, seven or eight inches for sills, stone pillars, split rails about ten feet long. The rails are driven in the ground about two feet deep; the upper ends project above the sill two or three feet, and are spiked down to the sills with large spikes; when the freshet comes, logs and drift-wood are carried over, and the fence will be left in as good order as before the high water.

Combined Marker and Clod Crusher.

J. R. Terhune, Andrew Co., Mo., sends us the following description and illustration of a useful combined tool, which is made as follows: Three runners are provided, four feet long, eight inches wide and two inches thick; four two-inch planks of strong, hard wood, eight feet long and eight inches wide, are let into the runners four and one-half inches deep; these slope from top to bottom edge backwards, forty-five degrees, so as to draw over the rough ground, and break clods by pressing on them. These runners are let into the cross-pieces



COMBINED MARKER AND CLOD CRUSHER.

one inch, and are fastened together by large screws. A strip of two by four is halved down on the runners in the front, for a draw-bar. The tongue is fitted with hooks, which are attached to rings on the draw-bar, so that it can be removed when the sled is turned over to be used as a clod crusher.

A Wire-Stretcher.

The accompanying engraving is from Philip S. Wiseman's model of a wire-stretcher, contrived by himself, about which he writes us: It may be made of hard wood, or of iron or steel bars. It consists of three pieces, two arms and a splicer, fastened together in the manner shown in the illustration, leaving a slot to hold the wire. The longer arm is made immovable upon the splice by means of two or more heavy bolts, while the

WIRE STRETCHER.

shorter arm is pivoted by one bolt. This allows the slot to be opened to receive the wire. The short arm is sharpened so that it may be stuck into a post, or the side of a building, if convenient. By placing this lever behind a post, one man can stretch thoroughly a long string of wire. When one man is doing the work alone, he can stretch the wire, fasten the lever back by means of a stick driven into the ground before it, and then go back and drive the staples. The short end of the lever should be about twelve inches long, and the long arm three or four feet, or even longer.

Rearing Calves.

The training of a calf has a most important result in fitting the cow for its future useful life. It is one of the most effective means of securing valuable cows, both as regards usefulness, and ease and security of management. Docility is a great

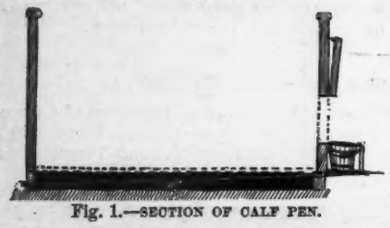


Fig. 1.—SECTION OF CALF PEN.

element in the value of a cow or a bull, and may be developed in the young calf by wise and careful management. As the calf "is bent," the cow "is inclined," and a calf is very easily moulded, and brought under discipline from the first day of its life. The chief thing is, to so train the calf from the first, that there will be nothing to unlearn or to correct. It is not easy to correct mistakes in rearing and training animals, for they learn quickly and easily, but forget with difficulty, and very slowly. A calf should be removed from the dam before it has sucked, and placed in a pen by itself, out of sight and hearing of the cow. Having learned nothing so far, it has not to be weaned of any natural habit which is fixed upon it by its first experience, and it makes no complaint on its removal from the cow, but behaves as if it never knew of its dam, or her uses. The calf pen should be about eight feet long and four feet wide, with partitions four feet high, and only one calf should be kept in each pen. The calves then never learn the habit of sucking each other's ears, and other troublesome tricks. At figure 1 is a section of a convenient calf pen, which we have used for years with much comfort and success. The plan of the row of pens is shown at figure 2. There is a narrow entrance door; also a small lifting feeding door to each pen. The floor of the pen should be double as seen in figure 1, the under one sloping to the rear, to carry off the moisture into the manure yard, or into a gutter leading to the yard, and the upper or standing floor, made of spars, or bored full of holes, or having drainage spaces, by which it is

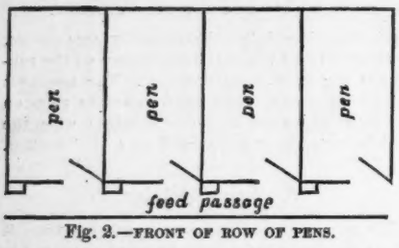


Fig. 2.—FRONT OF ROW OF PENS.

kept dry. This is indispensable to the comfort and health of the calf. The small feeding door when raised, is held back by a catch, and the calf will immediately put its head through, and is then fed from the pail placed in front in a safe receptacle, made to hold it so that it cannot be upset. In a few days the calf is taught to drink, which it soon learns to do, and after that there is no trouble. The milk is carried to the calves in a large pail, and the feed pails are supplied one by one, and left for the calf, which drinks it without being waited on, and thus a great deal of time is saved. Ten minutes is sufficient time in which to feed a dozen calves in this way, while only one could be fed in this time, when the pail must be held in the hand. The pails are then taken at once to the pump, washed and placed in the receptacles for the next meal, the door being fastened down by a button.

ORCHARD GRASS.—Last season our crop of orchard grass averaged five feet nine inches high over the whole field, and yielded at the rate of four tons per acre. A square rod, accurately measured and weighed, yielded two hundred pounds of fresh cut grass, which made a full day's feeding for four cows. Some of this hay has been sold for twenty-five dollars per ton, making the yield per acre one hundred dollars. This instance is by no means a singular one. A field of orchard grass, sown in 1864, is still cut for hay, and is pastured every fall, to take off the dense aftermath. This land, when seeded, had been well manured, and the field has been top-dressed nearly every year since. We consider this the most valuable of any grass grown, because of its handsome behavior when well treated, and its permanent character. It is the first grass to afford a bite in the spring, the first to cut for soiling, the first to mow for hay, and the last to furnish feed in the fall. The best time in the year to sow it, is late in July, or early in August. Three bushels of seed should be sown to the acre, but if one expects it to do its best, he must do his best by it.

What is Soiling?—Soiling Crops.

It is a well-known fact that, as labor is the source of all wealth, the more labor that can be usefully applied to any process, or industry, the more profitable it can be made. This is quite true as regards soiling, as a method of feeding dairy cows. Soiling is the practice of growing crops to cut green, and feeding them to cows. It is evident that this involves more labor than the growing of grass and the feeding of this by pasturage. But the product is much larger than that of pasturage, and it is just here that the principle above-mentioned applies. There are several very prolific crops which can be used for soiling, and some of these crops mature so quickly for use, that two, or even three, can be taken from the same ground in one season; thus producing from one acre as much as thirty tons of nutritious fodder, which is several times as much as can be taken from one acre of grass. The first of these crops, in order of succession, is rye sown in the fall, and cut for feeding as soon as it is in blossom, which will be in April or May. A fair yield of rye will be six to eight tons of green fodder per acre. As soon as a strip of ground is cleared of rye, it should be plowed, manured, and planted with early sweet corn, the rows being two and one-half feet apart, with the seed dropped (three together) every twelve inches in the rows. This corn is planted in succession, as the rye is cut off each week. In the meantime, oats, or oats and peas, are sown as soon as possible, to be ready for cutting in June or July. A field of clover or orchard grass is a part of the system, to be cut and fed as soon as the rye is finished, early in June or in May. The clover or grass continues until the earliest corn is ready, when all trouble is over and all through the dry hot summer there is available a great abundance of rich, succulent food, which keeps the cows up to their full capacity in milk and cream. The succession of corn is followed by later plantings on the first cleared ground, and on the ground cleared of oats or oats and peas, until the middle of July, when Stowell's Evergreen corn is planted, for fall feeding, and to cure for use in winter. This late crop is planted in rows three feet apart, with four or five seeds, dropped at intervals of fifteen inches. The yield, with liberal fertilizing, has been as high as twenty or more tons of green or five tons of dry fodder per acre. The main dependence for winter feeding is a crop of mangels, sown in May or early in June. Thus the whole year is rounded out; the winter feeding consisting of the roots, with the hay and fodder left over from the summer feeding. Ample provision is made for the winter by having a sufficient supply of these fodder crops. The manner of feeding these crops is as follows: Two days' supply is cut at first, and drawn to the barn. One half is kept in the barn for the next days' feeding. It is best to have the fodder wilted before it is fed, and never to feed any of it when it is wet with rain. It is advisable therefore, in case of threatening rain, to get in a sufficient supply to last until the weather clears off again. The second day, one day's rations are cut and carried in, always having at least one day's feeding in advance. Where twenty cows are kept, one smart boy will do all this work of cutting the fodder and feeding the cows, costing no more than two and one-half or three cents a day per cow; a small sum that is all repaid by one quart of milk extra daily from each cow, or several times over by the saving of manure by keeping the animals in the barn at night and at feeding times; or in the yards or feeding lots; and once more by the saving of feed in avoiding the trampling and fouling of grass by pasturing. The profit is in the increased yield by reason of the comfort, the quiet and contentment of the cows; the large extra yield from the area of land by reason of the repeated crops; the avoidance of waste of feed; and the very large saving in manure, and the greatly increased fertility of the soil. There is always manure on hand to use for every crop that is grown. It is quite possible under this system to keep twenty cows on thirty acres; some dairymen who have become expert by practice, have kept one cow to each acre of cultivated land. Where this complete system cannot be conveniently practised, partial soiling may be made exceedingly useful in affording fresh green feed in the summer and fall, when the pastures are dry and bare, and thus greatly prolonging and increasing the yield of milk. S.

How I Preserve My Agriculturists.

Being a long distance from a book bindery, I bind the *American Agriculturist* in the following manner: Take the numbers for a year, arrange them in their order, and place the index sheets between the cover and the first page of the January number. I do not leave out the advertisements, as they are at times convenient for reference. Lay the numbers square on a board or table, so that the backs will be near the edge; lay a strip of wood on

top, half an inch from the backs, clamping all firmly together with a pair of iron clamps, as in the engraving. With a fine gimlet bit in a brace, bore through the numbers nine holes. Take a strong thread, or a fine twine, in a darning needle, and sew the numbers firmly together. I commence by running the needle up through the lower hole, down through the next, and so on to top, then sew back through the same holes, then commencing at top, draw the cords tight, and tie the ends firmly on the back at bottom; a coat of glue over the back strengthens it. Then cut two pieces of strong pasteboard the size of the book from the line of sewing; lay one on each side, with its edge close to the threads, and paste or glue a strip of strong cloth or sheepskin over the back, and allow it to lap on the covers about an inch. The pasteboard can be covered with marbled or other paper, and will make the book about as durable and convenient for reading or reference as if the binding were more expensive. A SUBSCRIBER.

THE ADVANTAGES OF A ROOT CROP.—A root crop not only furnishes a large quantity of the best kind of fodder for cattle, sheep and pigs, equal to the feeding of six head of cattle for six months, from an acre of ground, but it enables the farmer to use up all his straw for feeding, instead of wasting it to a large extent for litter. Anything that can be fed to animals, is wasted when used for litter to the extent of the flesh or milk that can be made from it, and the increased availability of the manure made from the fodder. So that when a farmer can use all his straw by cutting it and mixing it with pulped roots, his root crop is doubly advantageous. The straw, aided by a little cotton-seed meal, then becomes as nutritious feeding as hay, and serves the farmer a far more valuable purpose than if it were employed for litter alone.

Central Park—Summer Opening.

Central Park has its attractions at all seasons, but those of the winter months are enjoyed by comparatively few. It is only when the park displays its summer robes, when the animals occupy their summer quarters, and the sheep graze leisurely on the lawn, when the lakes are raised to their summer level, and the swans, liberated from their winter shelter, arrange their nests with a view to housekeeping, that the park is fairly opened to its chief use—that of a summer resort and play-ground for the masses living in New York's crowded dwellings. The two striking features of scenery in Central Park, are rocks and water. The vast masses of rock, so undesirable if the territory were to be used for building upon, are so treated as to lend picturesqueness to the park. The numerous lakes, some of large size, were formed by utilizing the small streams, or runs, which traversed the territory. The attractiveness of the water scenes is greatly enhanced by the introduction of water-fowl, especially European swans. In the early days of the park, the officials of a European city, Hamburgh, contributed to New York, a number of its public swans; it is mainly from the increase of these that the large flock of swans at Central Park was derived. This swan is known as the Polish swan, and is more highly valued than the ordinary European swan, of which it is probably a variety, though some regard it as the wild state of the tame European swan. The swans at the park have to be sheltered in the winter, but at other times they need little care, and they breed very freely. Their acts at breeding time afford great amusement to the visitors. When mating, the male birds have terrific fights, each trying to drown his rival. After the pairing is arranged, the birds prepare a large mass of coarse reeds, rushes, etc., for a nest, for which they prefer a small island; sometimes a rude raft is provided for them to place their nests upon, and anchored near the shore of the lake. The eggs are from five to seven in number, and the birds sit for six weeks. While the female is on the nest, the male swims slowly around, keeping most vigilant guard, and if any bird ventures near, he advances to meet the intruder, and drive it away. The movements of the birds during the time of incubation, attract and interest a large number of spectators. After the young—called cygnets—are hatched, they are cared for by both parents, and when quite young, are often carried on the back of the female. They remain with their parents until the following spring. Swans are most ungainly birds upon land, their walk being an awkward waddle. On the other hand, they are noted for their graceful movements on the water. Their long, curved neck, adds much to their beauty. Whether swimming quietly, with closed wings, or with their wings set to catch the breeze, swans are wonderfully beautiful objects. Their presence in considerable numbers, adds greatly to the attractiveness of the park, especially for the children.

THE SWANS OF CENTRAL PARK.

Engraved for the American Agriculturist.

Bitter Milk—Cause and Prevention.

There are several causes for bitter milk. The most prevalent is the presence of ragweed or other bitter weeds in the hay. This is almost always the case when rowen or aftermath hay is fed, and at times when corn fodder from a weedy field is used. The flavor of ragweed is so persistent that it appears in the cream and butter and spoils the latter for use. This is to be expected, because the flavor of ragweed and other plants allied to it is due to an essential oil, which will naturally combine with the cream and remain in the butter. The flavor of it also affects the butter in the fall from cows pasturing in meadows. The only remedy for this defect is to avoid the cause. Another cause in which all seem to agree is that in certain conditions the milk of farrow cows will be bitter. This peculiar flavor is perhaps caused by some change in the character of the milk which indicates that the secretion is not pure, and that milking should cease. Other opinions are to the effect that the cow is not in good health and the products of some disorder are being discharged in the milk: an occurrence which frequently happens, and which shows how necessary it is to guard against any injurious use of the milk of diseased cows. Cows suffering from tuberculosis, or consumption of the lungs, will continue to give milk copiously, but its flavor is exceedingly disagreeable, and nauseous at times, being mawkish and bitter, and quite unfit for use.

It is certain that milk is made bitter by premature decomposition produced by the remains of stale milk in the crevices of the pans. In all these cases the remedies or the means of prevention are obvious. No wooden utensil should be used in milking or in setting milk. Wood absorbs the milk into its pores, and when the pail is scalded, this milk becomes coagulated, ferments and decomposes, and will surely injure the milk, by infecting it with a leaven of putridity. Tin pails and pans should first be washed with cold water, then with hot water and soap to remove the grease, then rinsed, and finally scalded with boiling hot water, wiped with clean dry towels, and afterwards placed out of doors to air in the sunshine.

Soiling Crops.—Every farmer should plant some crop for fodder. Grass will begin to fail in July, and in August it is usually scarce. A plot of fodder corn will then be found of great value to keep up the flow of milk; and if there is a succession of such crops, the fodder will furnish acceptable provision for the cows until the end of the season. But it will not do to sow the corn broadcast. The plants must have light and air to make a healthful growth, and the white, watery, innutritious stuff often grown, and called fodder corn, has done much to bring the crop into undeserved disfavor.

Special Crops for Poultry.

R. G. NEWTON, DAKOTA.

Every poultry breeder understands the value of having a variety of food, and that it is essential for the health of the fowls, and the production of fertile eggs, from which he can expect strong, healthy chickens. One can imagine the result to a community who would try to live exclusively on corn; yet probably nine out of ten who raise poultry, think their duty done when they have scattered before them their quart of corn and gathered the eggs. This treatment may appear to fulfill all necessary obligations when fowls can have unrestricted range through the summer season, as Nature seems to provide means for sustaining life for feathered, as well as human tramps. The necessity of providing corn, sometimes with wheat and oats for winter food, is generally understood, but if to these were added a supply of the other grains and vegetables of which fowls are fond, we would not hear so much complaint as now of stock "running out," and producing nothing but scallions.

As to the special grains, we may name buckwheat as one of the most valuable for the production of eggs. Sunflower seeds should also be included in the bill of fare of all well regulated poultry yards. The large amount of oil they contain seems to be especially valuable for young, growing chickens. I think the finest developed flock I ever raised was one that had free access to a quantity of well ripened sunflower seeds. They also give a gloss and brilliancy to the feathers, probably unequalled by any other food. Even when fed in large quantities, I have seen no bad effects therefrom, as the husk or shell must be taken with the meat. I made an experiment one winter with two flocks, one of five pullets, and a cockerel of Plymouth Rocks, the other of twelve pullets, and a cock of Light Brahmas, these latter having a well appointed house, with all of the "modern improvements," sunlight, dust-bath, etc. The former were in a small coop about four feet square, with a covered run formed by throwing cornstalks on some poles, and standing my hot-bed sash up against the south side. The food for the two coops was scalded Indian meal. They were both fed from the same dish, and in proportion according to their numbers. The P. Rocks laid well, and gained in flesh all winter. The Brahmas "went back," both on eggs, and in flesh. The reason was that the first had the strippings from the cornstalks to help in the assimilation of their food, which the latter did not have. This proved, to my satisfaction, that some such coarse food must be provided if we would have the fowls thrive, and I may say here, that well cured green cornstalks, and young, tender grass and clover, should be provided for poultry as regularly as hay for other stock.

The soft or poor heads of cabbages, stored by themselves, probably are the cheapest and most easily obtained green food for poultry during winter. Two or three heads hung so that the fowls can easily reach them, around the sides of their coop, and renewed when necessary, will well repay the trouble. If one is going extensively into the raising of young chickens for an early market, it will pay to sow lettuce seed in a box, and place it in a warm, sunny window. The young and tender leaves are easily grown, and will add greatly to the health and growth of the chickens. Onions should also be grown and kept for feeding. They are by many considered as a remedy for the chicken cholera. If chopped moderately fine they will be eagerly consumed by fowls. Tomato seeds may be sown in the open ground, and if the plants are protected from fowls until well grown, they will furnish an acceptable relish during fall months; the chickens will harvest them when ripe, as every gardener knows from experience. Tobacco should also be grown by every poultryman who wishes to keep his stock free from parasitic pests. Pull the plants before frost, and hang them in the barn or shed to dry. A handful of the leaves in the nests of sitting hens, particularly, will add a great deal to their comfort, and more to that of their young. It makes no difference whether the tobacco is ripe or not before pulling. Hemp seed will be found useful for young and valuable chickens, but the sunflower is a good substitute, and much more cheaply raised. Peppers are a most useful condiment during the winter months, helping greatly in the production of eggs through the cold weather. A small number of plants of the long, red variety, will produce a plentiful supply, much cheaper and purer than the ordinary ground cayenne of the stores. I use them in connection with potatoes and meal. I generally set the potatoes on the stove after supper, and boil them until soft. Set them on again when the fire is started in the morning, and bring to a boil; pour off the water, break in one or two pepper pods, and then add meal, meal and bran, or corn and oats ground together. Mash all together, and make a firm, almost crumbly mass. This is suitable for a morning meal, but not for night. Beans well cooked, either whole or ground, will help fill up the list of foods. Rape seed is easily raised, and would be useful for choice young chickens. Seeds of the common millet, golden millet, sorghum and broom corn, will make a variety in the list of good cheap foods. Egyptian rice corn I consider valuable for young or old fowls. It is raised as easily as corn, and will produce bountifully. Barley, rye and oats are well known to be acceptable to the inhabitants of the poultry yard.

The Treatment of Garget in Cows.

Garget, or caked udder, which is known to medical men as *Mammitis*, or inflammation of the udder, is most common in the spring, when the cows are about to come in. It prevails more or less at all seasons, especially among large milkers and highly fed cows, and to some extent in cows that are badly cared for, and exposed to the rigors of the weather. The first indication of it is hardness of the udder, and a stoppage of the flow of milk, or the appearance of thick, stringy matter, in place of the milk. Sometimes it appears in the form of a blood-like matter in the milk. This may not be apparent until the milk has been set for cream, when the red matter is found at the bottom of the pan or pail. In very rare cases, nothing but a blood-like fluid is drawn from the teats, and this sometimes continues for weeks. The disease may be produced by various causes. Physical injury to the udder, as by blows, pressure, undue exercise when the udder is full of milk, exposure to cold by lying upon snow or ice, or in wet places, or in cold barns; over-feeding, chiefly before calving, or too soon after it; or by forcing the cow to a large production; or by constitutional tendency to it when she is near calving; all these are frequent causes of this disorder. There are cases in which from some physical defect in the udder, the glands are unable to secrete milk from the blood, but exude the blood itself, or an imperfect milk, which has some of the properties of the blood (chiefly it is red globules or coloring matter), and which throws up cream very little differing from that of ordinary milk. Such cases are very rare, and are wholly incurable. Garget is more easily prevented than cured. This remark will apply to the whole list of diseases and other troubles, to which cows are subject. A careful, observant dairyman, may not have a case of it in his dairy for years, while a neighbor may be losing half his product through it. Prevention lies in very careful feeding for a few weeks before calving, during which time no grain food should be given; avoiding excess of rich food, especially of cotton-seed meal, which is a dangerous food in this respect, on account of its highly nitrogenous character; by carefully providing warm shelter and bedding for the cows at all times, and avoiding exposure to severe weather, especially cold rains, or damp snows; and lastly, by careful driving, and the banishment of dogs from a farm where cows are kept. The treatment consists in giving a cooling purgative, as a pound of Epsom salts, repeated after two or three days; also, in warm fomentations of the bag, with gentle rubbing and kneading of the hard portions of the udder, until they are softened, and then after the udder has been dried with a soft towel, to apply camphorated soap liniment, mixed with an equal part of ether; this is to be well rubbed into the skin with the hand. This tends to allay the inflammation, and to prevent swelling of the glands. All the milk should be drawn off. If it is thick and ropy, a solution of carbonate of soda or saleratus in warm water, should be injected into the teats, and after a few minutes milked out. This alkaline injection will dissolve the curdled, acid milk, and bring it to a condition to be drawn off with ease.

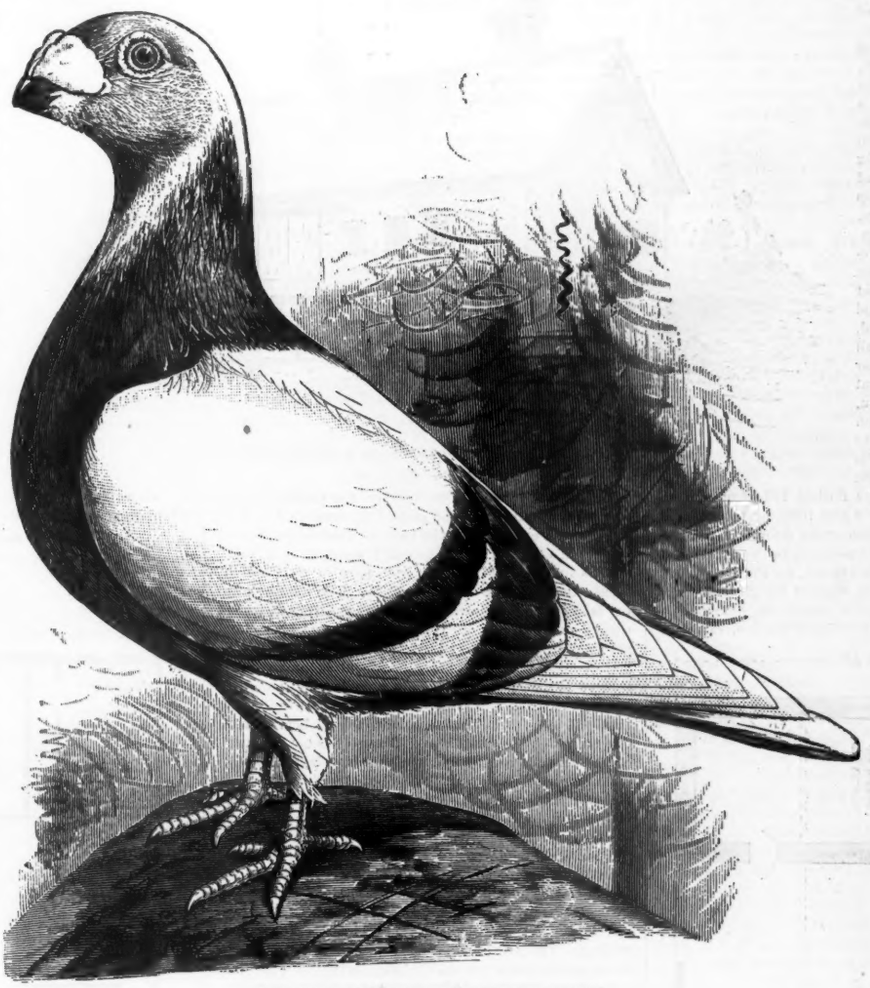
Use the Brush on the Cows.

Few persons consider the skin as an excretory organ. It is supposed to be—by those who think at all—merely a protecting covering for the muscles and animal frame, and something for the outer protective coat of hair, or fur, or wool, or feathers, to grow upon. But the skin is really the most important outlet for the waste matter of the whole body of an animal. It is by no means a tight covering, but contains myriads of pores or openings, through which watery vapor escapes, and with which also escapes a large quantity of impure matter from the blood. At times, the skin discharges a large quantity of liquid matter, which we call perspiration, and it is always discharging moisture, which escapes insensibly. At least, the skin does this when in a healthful condition, and when this excretion stops, it is an indication that something is wrong. Besides this, the skin is constantly changing its substance; the outer portions scale off, or exfoliate, while it is renewed from within; so that in course of a short time, the whole skin wears away and is renewed. Where the skin is covered with hair, these scales are apt to gather and with the perspiration to become compacted into a mass, stopping the pores and preventing the escape of the waste matter, which being retained in the blood, does much harm. For these reasons, constant attention should be given to the skin; brushing it, both to remove the exfoliated matter and the dried perspiration, and to excite it to healthful action, should not be neglected. Horses, as a rule, are fairly well attended to, because it is a custom to curry and brush them regularly. But in many cases, they are not sufficiently cleaned; consequently their health is impaired. The skin becomes clogged, and the perspiration is retained in the blood, producing more or less blood-poisoning, which may result in a variety of disorders, at times producing farcy, which ends in glanders. At best, the coat becomes harsh, dry, and staring; the skin is tight, or, as it is called, "hide-bound," and becomes irritated, producing itching, with perhaps the loss of hair. Eruptions on the skin, and pimples, and perhaps the well-known "scratches" result from the retention of these impure matters. To avoid all these troubles, the horse should be thoroughly brushed with a stiff, clean brush, for at least ten minutes, morning and night; and in the summer, when perspiration is profuse, the skin should be sponged, or washed down with a wisp of wet straw, and then rubbed dry, before it is brushed.

But few farmers ever think it necessary that a cow should be brushed. We have seen neighbors laugh and ridicule what they called our over-niceness and fussiness, when the cows were curried and brushed twice a day, with as much care as was given to the horses. "What! curry a cow? Never hearn tell of such a thing!" But a cow needs it, even more than a horse; and for several reasons. A cow, whose milk is used for food, unless she have a perfectly clean skin, cannot give clean milk, and then the butter will be bad. The skin should be in a perfectly healthful condition, and the blood pure, or the milk will be impure and unhealthful, and the butter or cheese will be tainted. Neither cleanliness nor healthfulness can be secured without regular brushing of the skin and the removal of all the filth which will gather upon ill-kept cows. This should be done before the cows are milked, both morning and evening. The morning cleaning should be a thorough one; a simple brushing, to remove dust and loose hairs, will be sufficient for the evening. It will help very much, for both horses and cows to have the stables so floored that the animals can be kept from fouling themselves.

Carrier Pigeons—The Champion Antwerp.

An exhibition of pigeons presents a wonderful variety in the different breeds, from the modest Nun to the proud Fantail and the curiously marked Carrier. If one is told that naturalists regard all these varieties as derived from a single wild species, he may think, "so much the worse for the naturalists." Yet there is no fact in the origin of our domestic animals better established than that all our varieties of pigeons have been bred from the wild Rock Pigeon (*Columba livia*) of the Old World. This is a bluish-gray bird, marked with bars of a dark, nearly black color, and varies somewhat in plumage in different countries. Probably none of all the breeds is more unlike the wild bird, than the English Carrier. This is the largest of all the varieties, and usually of a dark color. One of its most marked peculiarities is a mass of naked, carunculated skin, over the bill and nostrils, extending to the lower half of the bill; the eyes are encircled by a similar growth. This, which is by fanciers called the "wattle," has the appearance of a fungoid growth; it is usually white, but if blackish, as it sometimes is, it greatly enhances the value of the bird. The muscles of the chest are well developed, to enable it to sustain long and rapid flights. A striking peculiarity of Carrier pigeons is their "homing" instinct. If taken to a point a long distance from home, and liberated within a fortnight, they rise spirally in the air, to a great hight, and then strike a direct course for home, and, flying at the rate of thirty miles an hour, usually reach it, especially if they left young birds in the nest. The instinct which leads the Carrier to return home, is not fully explained.



THE CHAMPION ANTWERP CARRIER PIGEON.
Re-engraved for the American Agriculturist.

The birds were used to carry messages by the early Romans and by some Asiatic nations, but when this instinct was first developed, is not known. Before the electric telegraph, Carrier pigeons were more extensively employed than at present. Their most important use of late years was during the siege of Paris, when they were of great service as a means of communication with the outside world. The message, which must be on very light paper, is attached under the tail, to a wing, or to a leg. In the siege of Paris, micro-photography was brought into the service, and long messages were printed upon a water-proof film, which could be read by the microscope. There are several well-marked races among the Carriers. The English Carrier has a long and slender neck; it has a very long bill, sometimes an inch and a half in length, curved downward at the point, and with so large a wattle that, both on the bill and around the eye, it appears to be a monstrosity. The sub-race, known as Dragons, originated in Persia. They are much smaller than the English, and have much less wattle. A third race is the "Bagadotten-Tauben," of Germany. It has notably long legs and large feet, while the eyes are surrounded by a wide space of red skin. The Bussorah Carrier is a race of the East Indies, of very small size. The most noted Carriers of the present day are the Antwerp race, or breed. The compact build, well developed breast, long face, short bill, and well marked wattles, are given in the illustration which we re-engrave from the English "Live Stock Journal." This is the Long-faced Silver-dun Antwerp champion cock, belonging to Mr. Samuel Horsfield, Hyde, Cheshire. This bird has established its claim to the title "Champion" by winning prizes at a number of leading shows, notably those held at the Crystal Palace, near London, and the Birmingham show, where the contests are regarded by pigeon fanciers as important and decisive.

Cattle-Grazing in the Southern Mountains.

The Southern mountain region is one of the least-known territories in the United States. It occupies a gently-rising plateau about sixty miles wide and two hundred miles long, from West Virginia to the northwestern corner of Georgia, lying between the Blue Ridge on the east, and the Great Smoky range on the west, and gradually rising from its northern boundary, where its elevation is about one thousand to fifteen hundred feet above the sea level, to its southern extremity, where it reaches an elevation of three thousand five hundred feet. It is a country of valleys and mountains; the valleys are broad and gently sloping, and rise gradually to the summits of the mountain ranges which intersect it in every direction, like the threads of a net. All through this region the streams flow rapidly down the slopes, threading the tortuous valleys; falling in the most beautiful cascades over the rocky ledges, and rushing through the gorges until they unite in large streams which flow westwardly into the great Tennessee river. From the nature of the country, it is wholly free from swamps and marshes; the mountain slopes are rarely precipitous, but rise gradually in easy grades, and are for the greater part covered with deep, rich soil, which bears the most magnificent forests of valuable timber, and, when cleared, produces the finest grasses, wheat, oats, fruit, corn, tobacco, and other crops usual in the Northern States. Although in the heart of the cotton region, it is too cool for this crop, and the average temperature is remarkably equal the whole year, the summers being quite cool and the winters mild. At the present time it is very sparsely settled, being scarcely penetrated by railroads, which, however, are gradually making their way through it, and opening it up for settlement. In its present condition, it is one of the best stock grazing districts in the country. The woods are open and afford an easy passage-way for horses and ox wagons, on trails which answer the place of roads. The undergrowth is kept down by the annual fires which are set for the purpose of clearing off the dead leaves and encouraging the growth of nutritious grasses and herbs, which are abundant and afford excellent pasture for stock. Cattle, horses, mules, and sheep live in the woods for nine or ten months in the year, and can and do live the year round without any such losses as occur upon the more exposed Western plains. Flocks of sheep drop their lambs in January and February, and with some provision for feed and shelter, will rarely lose a lamb even at this season of the year. As only about five per cent. of the land is cleared and cultivated, there is abundant room for immigration, and land is very cheap. The whole region is now the largest reserve of valuable timber remaining, and persons who would delight in helping to maintain an equable balance between forest and arable land, with all the advantages which result from it, can there find ample opportunities of cultivating their tastes in this direction.

The timber is chiefly hard wood: walnut; chestnut; hickory; oaks; maples; birch; the poplar, whitewood, or tulip tree, which grows to enormous size; and some white pine and hemlock. The flowering shrubs are the great charm of the region. The magnificent Laurel, so called, but really the Rhododendron, with its grand clusters of bloom, lines the banks of the streams and covers the walls of the rocky gorges. Azaleas, Kalmias, and a great variety of the Heath Family, including the Trailing Arbutus, cover and beautify the mountain slopes.

The great money crop of this region, next to cattle, is tobacco, the fine yellow-leaf variety growing here of the finest quality, and sometimes selling for a dollar per pound. This business has already brought great wealth into the country, and has added thousands to the population of some of the larger villages and towns. The larger portion of the region lies in the western part of North Carolina, a State which is progressing and developing faster than any other in the South under the fostering care of a liberal and enterprising State Government.

A Very Complete Barn.

D. W. KING, ARCHITECT.

This barn, just completed for Judge Charles L. Benedict, of the U.S. District Court, at Far View, Richmond Co., N. Y., may be said to be one of the most complete structures of the kind in the country. The basement contains a vegetable cellar, a cow stable, ten feet high, with two box stalls, stanchions for twenty-four cows, stairway, room behind the stalls, and a driveway between. The main story has single stalls for four horses, a box stall, harness, feed, and tool rooms, and a calf-pen. Here are the threshing floor and passages, space for stairways, ventilators, and two mows for hay. The third story has a granary and a large storage loft. The dimensions upon the ground plan are thirty-six by seventy-six feet, and eighteen feet high, from top of stone wall to top of plate. These are the smallest dimensions that would give the required accommodations. The foundation walls are two feet in thickness, built of good field stone, hammer-dressed, so as to secure a flat bed; all well bonded, laid in mortar composed of best freshly-burnt Rosendale cement and clean, sharp sand, in the proportion of one part of the cement to two parts of sand. The walls are laid to a line on both faces, grouted, and the joints flushed full of mortar, all neatly pointed on the inside and thoroughly plastered on the outside. Suitable blue-stone door and window sills are set and built in the masonry in the usual way; flag-stone footings are set in cement, for the foundation of the basement posts which support the girders. The bottom of the entire basement is paved with small cobble stones well pounded down, covered with a concrete floor

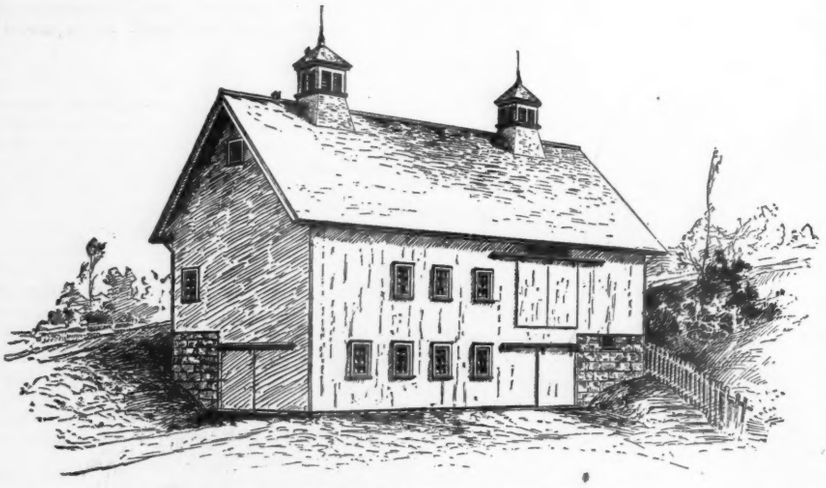


Fig. 1.—FAR VIEW BARN—SEEN FROM A NEIGHBORING HILL.

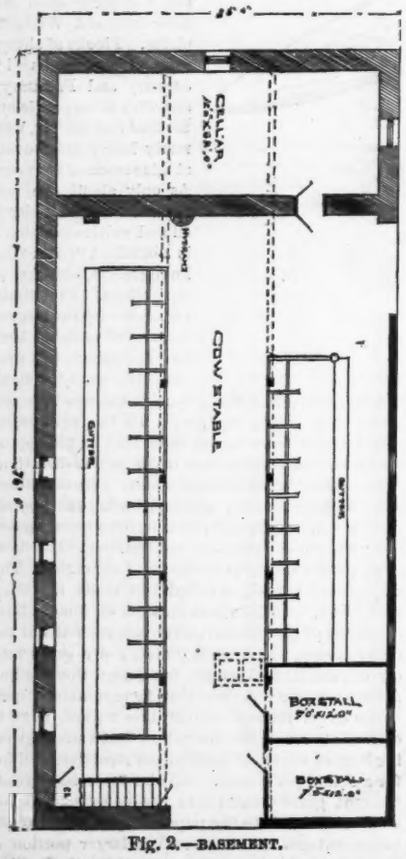


Fig. 2.—BASEMENT.

six inches in depth, made of freshly-burnt Rosendale cement and clean, coarse sand and gravel. These ingredients were mixed dry upon a plank bed, using one part of the cement to two parts of the sand and gravel. This concrete was laid down in board moulds, rammed well in place, and brought to a true surface. Gutters, eighteen inches in width, graded so as to carry off the liquids, are formed behind the cow-stalls. At the lower ends of each, a cast-iron stench-trap is set and connected with a vitrified earthen drain pipe, which connects with a manure pit, about one hundred feet distant. Suitable timbers are bedded in the concrete, to receive the nailing for the necessary woodwork. The ground is excavated so that the side and end towards the barn-yard are built of wood to within one foot of the ground; an eight-inch brick wall is built under this part so as to raise the sill eight inches above the top of the concrete. The framing timber is of sound, seasoned, yellow pine and spruce, sawed square and true, and all framed, braced and pinned together with dry hard-wood pins. The exterior side walls are covered with one-inch dry, merchantable, white-pine, rebated siding, put on vertically, and securely nailed to each girth, and the joints battened with white-pine moulded, mill-worked battens, nailed to each bearing with two ten-penny finishing nails. The roof is covered with one-by-six-inch rough hemlock fence boards, placed two and one-half inches apart, and shingled with best-quality eighteen-inch white-pine shingles, laid five and one-half inches to the weather. The cornices are formed by nailing tongued and grooved boards upon the rafters, with the surfaced side down. The ventilators have white pine louvres on each side, as shown in figure 1.

The cattle stalls in the basement are floored with two-inch planking, firmly nailed to the bed pieces. A layer of salt is put between the concrete and floors, to prevent rotting. The mangers are built of dry white pine. A strong plank stairway, from the basement to the main floor, is inclosed with tongued and grooved dry pine ceiling boards, with a door at the bottom, hung with strong iron butts, and provided with a spring to hold it closed. Around the opening in the harness room is a neat railing.

The floor of the main story is of two-inch tongued and grooved spruce plank, surfaced on one side, well driven together, and nailed to each joist with twenty-penny nails. The floors under the horse stalls and calf pen are dropped below the level of the main floor, and a bed of concrete five inches deep, composed of best Portland cement and sand is laid on top of the planking. A cast-iron open gutter, set in the concrete, connects with an iron soil pipe, which leads to the manure pit.

The partitions between the horse stalls are of two-inch, tongued and grooved spruce plank, with the tops covered and the outer ends let into a groove in eight-inch turned posts, which are secured firmly to the floor. A band of iron is screwed to the tops of these partitions, to prevent horses from gnawing them. Each stall is floored with two-inch rough plank, so arranged that it can be removed when desired. The side walls, ceiling and floor of the granary are of tongued and grooved, dry, sound hemlock; the space between the studding is filled in with concrete eight inches high, to prevent the working of rats and mice. All outside walls of the horse stalls, and partitions of harness room, tool room, ventilators, calf pen, hay mows, closets, and inclosing of stairs, are of dry, tongued and grooved, surfaced pine. The storage loft is floored with dry, tongued and grooved spruce. One side of the ventilator over the stable is used as a hay chute, with a series of doors arranged to open at different hights, in which to throw the hay as it is required. A ladder is placed in the other compartment for the purpose of ascending to the storage loft. Three chutes to the vegetable cellar are made, with trap-doors accessible from the threshing floor. The eave troughs are so graded as to conduct the water from the center of the eaves to a conductor placed at each corner of the building.

An eight-horse power steam engine is placed in the tool room, which furnishes power to operate a grist-mill, corn sheller, feed cutter, grind stone, wood saw, and threshing machine—all of which are placed on the main floor—also a vegetable cutter, which is in the basement.

A twelve-horse power tubular steam boiler is placed in a small building eighty feet from the barn, which supplies steam to the engine, to a steam-pump, used to fill the reservoir, and to a large steaming tank for cooking the feed.

A manure pit at the lower end of the barn yard, twenty by thirty feet, by three feet deep, with walls of stone, cemented and made water-tight, receives all the liquids from the stables. By the aid of the machinery for cutting the fodder, and the tank for cooking the same, and the manure pit to receive the compost, the percentage of waste is reduced to a minimum.

Without giving a full list of detailed expenditures, we append a condensed statement of the cost of building the above barn, including all the necessary hardware, plumbing, lumber, mason work, labor, and fittings.

Estimate of Cost.

Excavation, drains and mason work, complete	$1,500
40,000 feet framing timber, sheathing, at $20	800
8,500 feet spruce flooring, at $20	170
11,000 feet white pine ceiling boards, at $30	330
5,000 feet white pine siding, at $30	150
1,000 feet white pine battens, at $30	30
4,000 feet finishing lumber, at $40	160

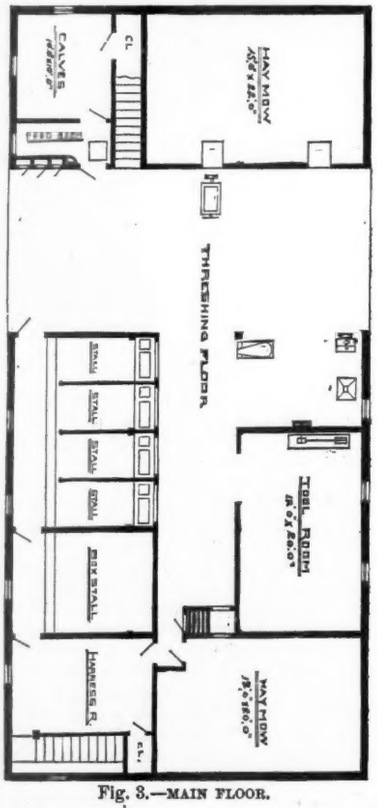


Fig. 3.—MAIN FLOOR.

27 windows, complete	150
Hardware and stable fittings	275
Plumbing	60
Cartage	256
Painting	225
Carpenter work and labor	1,833
Incidentals	61
Total	$6,000

OUR BASKET

Glucose Refuse.—Wm. Lea, of Canada, wishes to know, "if the refuse corn meal from the manufacture of glucose, is injurious to cows?" If fresh, it is not. Many milkmen use it.

The Catalpa Tree.—J. Wykoff, Jr., Somerset Co., N. J. The Catalpa is a hardy tree, and will grow upon any soil where anything else will grow. *Catalpa speciosa* is the most valuable for its timber, and its rapidity of growth.

Warts on Cattle, Mules and Horses.—J. R. Terhune, Andrew Co., Mo., writes us that he has excellent success by the use of a rubber cord, which is placed around the base of the wart, sufficiently tight to stop the circulation. In from six to nine days the cure is complete.

A Well or a Cistern.—James Brown, Monroe Co., Pa. A cistern at the barn or stable, is always worth its cost, because it gives a convenient supply of water, and avoids the escape of the roof water over the surface into the yards. It may be placed so that a pump may be used in the barn, and in one winter, this supply indoors, may be worth more than all the cost of the cistern and pump.

English Horse-Beans.—A. W. Sanders asks us if the English Horse-bean cannot be grown in this country, and if not, why not? It is generally supposed that by getting the seed every year from England a fair crop of these beans can be grown here, and the same is true of the broad Windsor bean, which many English families are very fond of when cooked green like peas. Our climate is too dry and hot for them, and they rarely escape mildew and plant-lice.

Shade from Growing Corn.—"We propose," says Mr. M., "to plant sweet corn in rows east and west, three feet apart, pretty thick in the rows, and expect some shade from it for early celery between the rows of corn." The corn will undoubtedly shade the land, but the roots of the corn, or any other growing crop, will pump up large quantities of moisture out of the land, and leave the soil much drier than if there was no other crop growing except celery.

Cow's Milk for Lambs.—N. P. Norman, Passaic Co., N. J., asks us if it is desirable to feed cow's milk to young lambs. It is never desirable, but sometimes necessary. The milk from a new milch cow is best. Feed frequently, and not too much at a time. If any ewe loses her lamb, give her the lamb for which you have no milk. This you can do, by placing the ewe and lamb in a small apartment by themselves, and holding the ewe while the lamb sucks. You will have to do this several times a day, until the ewe will own the lamb.

Plowing Corn Stubble in the Fall.—H. Jackson, Greene Co., N. Y. It is often advisable to plow corn stubble in the fall, if the soil is clay or any thing but light, sandy loam, that would pack under the effect of rains. It is always advisable to cross-plow in the spring, or at least to stir the soil well with a cultivator of some kind, before sowing oats. It has been a practice with some good farmers to sow the oats on the fall plowed land, plow them under with a light furrow, and harrow the surface.

Selling Cattle by Weight.—Thomas B. Ireland, Waukesha Co., Wis., writes us that he has taken the *American Agriculturist* for over twenty years, "and one hint saved me forty dollars in selling a nice lot of cattle. I had read in the *American Agriculturist*, that the farmer guessed once a year, while the butcher guessed one thousand times in a year. So instead of guessing at the weight, I used the scales, and saved forty dollars by so doing. I have often said that the *American Agriculturist* has saved me one thousand dollars. I would like to shake hands with the editor, and thank him personally for the valuable information he has given me." We thank him for his kind words.

Swede Turnips in Indiana.—Mr. Andrew Crook would like to know, "if ruta-bagas can be grown in Southern Indiana. I saw," he says, "some very large ruta-bagas grown in Northern Michigan when sown broadcast, but I have always failed to raise them here in Duboise Co., Indiana." It is not an easy matter to grow good ruta-bagas anywhere when sown broadcast. They should be drilled in rows wide enough apart to admit the use of a horse-hoe, and the plants singled out to twelve or fifteen inches apart in the rows. They should be sown in June on rich land, and be kept free from weeds.

Alfalfa or Clover.—J. F. Hazelton, Genesee Co., N. Y. Alfalfa will not make a good substitute for clover in New York. Moreover, it will not succeed if sown with a grain crop. It requires very careful preparation of the soil, rich land and peculiar sowing. It does best when sown in drills about twelve inches apart, and while young, to be cleanly hoed and cultivated. When it is well put in and succeeds, it will last many years, but it requires a warmer climate than that of the Northern States. It succeeds admirably in California and in Florida, but all our attempts to grow it in two Northern States, have failed. As you have the seed, and have determined to try the experiment, please report the result.

Sheep for Mexico.—E. H. Cole, of Mexico, writes us: "I have a lot of sheep, small, runty and of little value as wool producers. I wish to improve them by crossing with some large breed that will stand warm weather, and increase the wool product. Quality of wool is of no consequence. Quantity is what is needed, as the wool is manufactured into coarse goods, that have a ready sale at large profits. What breed do you think best for my purpose?" In such a case experience is the best guide. The large breeds of long wool sheep would require a constant supply of food. They do not stand periods of short food as well as the less improved breeds. Probably the better plan would be to select the best rams you can get of the breeds now kept. Select also the best ewes, and give the best food and care you can.

Culture of Corn.—H. C. Thompson, Washington Co., Mo., writes us: "I wish to give my experience last season with a crop of corn. I broke an old field of eight acres about six inches deep, harrowed and checked off three and a half feet apart, planted May the 8th. After completing planting, I hauled eight two-horse wagon loads of horse manure, and put on the hills of one acre, and four loads of cow manure on half an acre. Three plowings and one hand-hoeing, was all the cultivation that the entire field received. In the fall, I gathered from the acre to which the horse manure was applied, forty-eight bushels of shelled corn. The half acre which had the cow manure, produced eighteen bushels, at the rate of thirty-six bushels per acre. The remainder of the field only produced at the rate of fifteen bushels per acre. I hope others will experiment this season, and publish their success in the *American Agriculturist*."

Compost for Onions.—H. A. Prince, of Camden Co., N. C., writes us: "Please have the Doctor tell me, in 'Walks and Talks,' in the next number of the *American Agriculturist*, how to make a compost for onions, with cotton seed, ditch scrapings, stalk manure, and what else is necessary for very poor, sandy loam. I want it for the potato, or multiplier onion." The Doctor says he has had no experience with cotton seed. Some of our Southern readers will perhaps be kind enough to give us a brief article on the subject. Cotton seed cake, ton for ton, is much more valuable for manure than cotton seed itself. The oil in the cotton seed has no value as a fertilizer, and it retards decomposition. The Doctor says, he should think on general principles, the better way would be to soak the cotton seed and keep it warm and moist until it commenced to germinate, and then compost it with manure, soil and any material that is convenient. Make the compost this summer, and use it next spring.

Red Shale Soil.—J. Wykoff, Jr., Somerset Co., N. J. Red shale soil is one of the best when it is well cared for, but it is soon exhausted by careless cultivation. The richest farming lands in the country lie in the red shale belt which stretches from New Jersey to Georgia, but some of the poorest lands too are found in it, where the soil has been exhausted by bad treatment. Where the soil is thin upon the underlying shale, it suffers very much in dry weather, as all clay soils do, unless they are deeply and thoroughly pulverized by good culture. Draining dry land is a waste of labor. Drains in such land cause little aëration, and the claims that they keep the soils moist in dry weather, are without good foundation. Deep plowing and thorough surface cultivation, will make them retentive of moisture. Irrigation of such a soil may be used profitably if the water can be turned upon the land at a reasonable cost. It is wholly a question of the cost, and sufficiency of the water supply.

Moisture of the Soil.—F. T. Corbin, of Chenang Co., N. S., has twenty acres of black muck soil under the plow, about one half broken for the first time. He proposes to sow it to oats and peas, and after harvest seed with grass alone, the last of August or early in September. This is not a bad plan, provided the land can be brought into condition for the grass. Sometimes these black mucky soils, after they have produced a crop of oats or hay, are very dry in August and September, and the grass seed might not germinate until we had rain, and the result would be a poor catch of grass seed, and more weeds than hay the next year. We have plowed such land in the summer, and kept the surface free from weeds by the use of a harrow, or later with cultivator or disc harrow, and in August sowed a peck of timothy seed per acre. The soil, not bearing any crop, was moist, and the seed came up thick and strong, and the next year we had a wonderfully fine crop of timothy hay. The point of these remarks is simply this: all growing crops rob the soil of moisture.

Peas, and Peas and Oats.—Mr. Alonzo Palmer, of McKean Co., Pa., writes us: "Please tell us how to raise peas as a field crop, what kind to sow, and how much per acre. Also oats and peas sown together." The white, or black-eyed Marrowfat, is a good variety. But on our own farm we usually sow a small white pea that we get from Canada. It is sometimes called the "Canada Creeper," sometimes "Golden Vine," or any other name the customer asks for. It is simply a common field pea, resembling "Early Kent," but quite small, and free from any trace of wrinkle. Sow on sod land, or on any other that is in good condition. Three bushels of Marrowfats, or two to two and one-half bushels of the small Canada pea, drilled in, or sown broadcast on the furrows before harrowing, will be seed enough per acre. When oats and peas are sown together, let the total seed be not less than three bushels per acre, more or less peas, or more or less oats, according to your object. Two bushels of peas, and one bushel of oats, will give you a crop on rich land, that looks almost all peas. If you sow more oats than peas, the crop will look like oats.

Sawdust vs. Straw for Bedding Cattle.—A gentleman in Nova Scotia, writes us: "I am reading Mr. Harris' 'Talks on Manures,' with great interest, but wish for more information in regard to the use of sawdust for bedding cattle. I am living with General Laurie, who has a large farm, feeding now some seventy oxen, thirty cows and ten horses. All the manure is kept in sheds contiguous to the barns. The manure is wheeled from the barns into the sheds, and, with the exception of the horse stable, there are tanks into which the liquid manure runs, which is pumped up and taken away in a cart for grass land. The cattle are well fed, all the feed is cut, and they get five pounds of oil cake per head per diem. Two young pigs run over the horse manure, and are doing well. The General beds both cattle and horses with sawdust, and believes in it. He reasons that he makes more manure, and utilizes food-matter to better advantage, by feeding all the straw and bedding on sawdust, a material which would otherwise go to waste. Straw would cost about eight dollars per ton delivered here. A car-load of sawdust, containing about ten tons, costs twelve dollars delivered. I think if he bedded with straw, he would make better manure, and a great deal more of it. I should like your opinion on the subject. I may say that I am an Englishman, and would give more for one wheelbarrow load of what I call well rotted dung, than for a cart load of this stuff, but am ready to acknowledge that I am wrong if you decide against me." We cannot give a definite answer. Straw is certainly not in itself worth eight dollars per ton for manure. Judged by the nitrogen, phosphoric acid and potash it contains, wheat straw is supposed to be worth two dollars and sixty-eight cents per ton, oat straw two dollars and ninety cents, and pea straw, three dollars and seventy-four cents per ton. We say supposed, because as a matter of fact, the nitrogen is not in an available condition, and is not worth the estimate. When used as an absorbent of the liquid from animals, and allowed to decompose without loss, it may be worth the two dollars and sixty-eight cents per ton, but it is certainly not worth more than this. Of course, if it prevents manure from running to waste, the amount saved should be added to its value. And so with the sawdust. Its real value, except as it improves the mechanical condition of the soil, is merely as an absorbent. We are decidedly of the opinion, however, that it is much more economical to buy sawdust at one dollar and twenty cents per ton, than straw at eight dollars per ton, if both are used merely for bedding, and absorbents of the liquids of the stable.

Horse Stables.

The condition and health of a horse depends very much upon the kind of stable it is kept in. There are horses which suffer from disease of the eyes, from coughs, from scratches and other skin diseases, all of which are produced by the pungent foul air in the stables. Farmers and others who have horses, will take pains to keep their carriages and harness protected from the strong ammoniacal air of the stables lest the leather may be rotted or the varnish dulled and spotted; and at the same time they will wonder why their horses cough, or have weak eyes or moon-blindness, or suffer from other diseases, which, if they would only think for a few minutes, they would readily perceive are due to the foul air the animals are compelled to breathe every night in the year while confined in close, badly ventilated stables. The remedy is very easy. The stable should be kept clean; this will prevent the greater part of the mischief; and it should be well ventilated. The floor should be properly drained, so that the liquid will not remain on it, to be absorbed, and decompose, and produce the pungent vapors of ammonia, which are so injurious to the eyes, nostrils, throat, and lungs, and this liquid waste should be carried away to some place where it can be absorbed and utilized. The floor should be washed off at least twice a week with a plenty of water and then liberally sprinkled with finely-ground gypsum (plaster) which will combine with the ammonia, and fix it. A solution of copperas (sulphate of iron) will have the same result. Lastly, the floor should be supplied with absorbent litter, which should be removed when it is soiled. Ventilation should be provided in such a way as to avoid cold drafts. Small openings, which may be easily closed with a slide, may be made in the outer wall near the floor, and similar ones near the ceiling, or in the roof, through which the foul air can escape. Pure air is of the utmost importance to the well-being of horses. As an instance of it may be mentioned the fact that in the English cavalry stables a complete system of ventilation reduced the average loss of horses from the deadly disease, glanders, from one hundred and thirty-two per thousand yearly, to nine in the thousand; and when a similar improvement was made in the French army stables, the percentage of death was reduced in a similar ratio, with a still larger decrease of milder ailments.

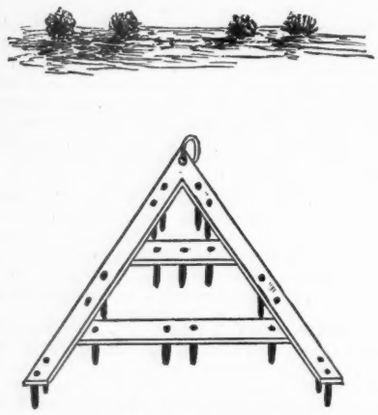
Growing Beans.

We need more cultivated crops to aid us in our never-ending warfare against weeds and in the necessary tillage of the soil, and beans is one of the best of this kind. It is also very profitable, for when forty bushels per acre can be produced, and they sell for two dollars and fifty cents a bushel, as we have at times realized for pea-beans, or even one dollar and fifty cents, which is the current price now, the income is very satisfactory. But there is another advantage in it, and this is that to grow a satisfactory crop, a farmer must put his land in good condition, manure it well, and keep the weeds down, which is a sort of discipline that makes good farmers. For instance, as soon as the corn stubble is cleared, the ground is manured and plowed; or the manure is left until the spring, and is then covered in by cross-plowing. The land is then thoroughly harrowed and marked out in double rows eight inches apart, with spaces between, sixteen or eighteen inches wide, as shown in the illustration, or more, if thought advisable; bnt on light soil we have found twelve inches between the rows to be sufficient, and the closeness of the rows prevents much trouble from weeds. The beans are then planted with a hand drill or a horse, grain drill, by arranging the spouts in a suitable manner, and after planting, the ground should be smoothed with the smoothing and brush harrow shown and described in another place. The time of planting need not be before the tenth or fifteenth of June, and as the crop will be mature for cutting in September, it will leave the ground ready and in the best condition for a crop of wheat, after working with any good disc or coulter harrow or a common cultivator.

When planted in this way, the beans will need very little cultivation, as the ground will be soon completely shaded. A special harrow, made for the purpose (see engraving) has been found quite suitable for this work. It is a V harrow, with two cross-bars and guiding handles, and with teeth sloping backwards forty-five degrees, placed so that the rows of plants are passed over without injury. The harrow is drawn by one horse and is made to take two double rows at each bout.

The ground being kept level, there is nothing in the way of cutting the beans with the self-raking reaper, or the mowing machine. We have used the latter, by fitting a frame covered with gunny bagging, to collect the beans (as is used for clover seed at times), and the beans are raked off by a boy following with a hay rake. This leaves the ground clear of beans for the horse on the next round. The beans are dried on the ground, and when dry are brought in and thrashed at once.

Our American bean, *Phaseolus*, differs considerably from the English bean, *Vicia Faba*, in its



HARROW FOR BEAN CULTIVATION.

form, both of plant and fruit, but the composition of the fruit is almost alike in both kinds. They are both rich in the nitrogenous matter known as legumine, which is almost identical, chemically, with the caseine of milk, the albumen of eggs, and the fibrine of blood; and are consequently an exceedingly nutritious food for stock, and especially for young animals, as calves which cannot be fully supplied with milk. The beans are not readily eaten whole, but when ground with an equal quantity of corn and twice as much coarse middlings or fine bran, or rye in place of these, the mixed feed is taken readily by horses, cows, working cattle, and swine. Horses do well upon it, and for those which are worked hard, it is one of the best foods. For this reason the bean crop deserves attention, if it were not that it is always salable at a good price, and sometimes at a very high price, compared with other products in the markets. The white Marrow-fat and the Pea or Navy bean, are the most profitable kinds to grow for market as well as for use. The haulm, after thrashing, is an acceptable fodder for horses and sheep, and contains more nutriment than an equal quantity of hay.

The change in the rotation which is made by this crop is favorable to good culture of the soil. It may follow corn, or oats, which usually come after corn, and this brings in a cultivated crop after the corn, which is of great benefit; or after the oats and before the wheat, which is equally beneficial, and exceedingly advantageous for the following wheat. It is known that wheat does better after a leguminous crop than after oats, and the good effect of the cultivation given to the beans, the manuring, and the shading of the soil, all together will give the wheat an advantage which no other preparation could. If we could only add to this rotation, a root crop coming between the corn and oats, with the beans preceding wheat, we might then expect to have our farms produce double the present averages of all the crops, and also double the quantity of stock kept. There would then be few complaints that farming does not pay.

Pig Feeding at the West.

R. A. STEELE, DOUGLAS CO., KAN.

In an article in the February *American Agriculturist*, Mr. Curtis states, or implies, that the western hog raiser is wrong in the general management of his swine. While I endorse in the main what he says in this article, and also in one in March, I think he is not well informed as to the quality of a large per cent of western hogs. Having been a shipper, as well as a feeder of hogs for twenty years, I am familiar with the subject. I am feeding now one hundred and twenty-five hogs, which are following cattle, and are in splendid condition. I seldom lose any in shipping. I buy most of my pigs of men who raise them on grass, with a little corn, who find it profitable. When the pigs are of my own raising, I allow them to run in the field, while I am cultivating the corn. I am greatly in favor of tight fences; mine are principally stone walls. I feel sorry for the poor theorist who would discard all fences. I have four fields with hog-proof fence, and am making more. The advantage is, I can turn my cattle in on the corn, and finish up with hogs, using the field for a feed lot. In doing this there is no such thing as waste. After feeding ten or fifteen thousand bushels of corn, the manure is a great consideration. In case of summer feeding, no crop should be raised on a lot used for this purpose. Some force their pigs with corn and milk, while they are confined in small pens without exercise. Many of them die in transit, and it is well they do, for they are such vile, scrofulous things that no good shipper will buy them. That the quality of cured meat is below what it was ten years ago, there is no doubt in my mind. For my own use, I kill no hog that is less than eighteen months old. I select one that is thin-skinned, active, and matured, to weigh two hundred to three hundred pounds; either a spayed sow or a barrow, selected with a full knowledge of the treatment it has had. The present system of forcing pigs encourages hog cholera; indeed it is in my opinion the main cause of it. Long experience has demonstrated to me that hog cholera can be prevented, and this is certainly better than to encourage it by a false system of feeding, which engenders other diseases.

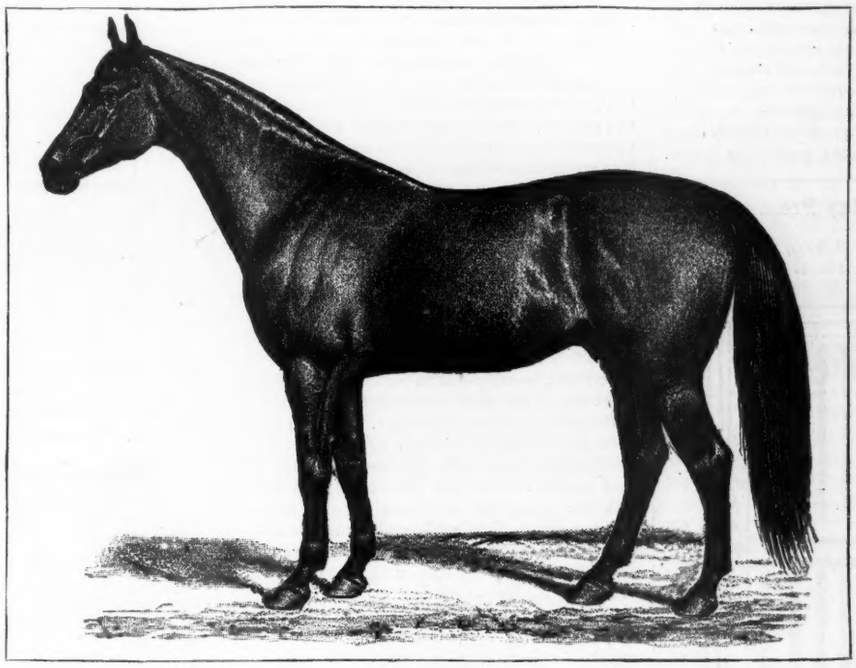
Breeders of Holland Cattle United.

Our readers will be interested to know that the Committees of the Holstein breeders and the Dutch-Friesian Association, appointed for the purpose, have agreed upon a plan of uniting their interests and herd-books. It is substantially this: The new Association to be called the "Holstein-Friesian Association of America;" the cattle to be called the "Holstein-Friesian cattle of America." The herd-books already issued by the two Associations will remain without change, and animals registered in them will be entitled to have their progeny registered in the herd-book of the new Association. Under the new Association no cattle imported hereafter will be entitled to registry unless they were registered in the herd-books of Holland before importation, and the registry fee for imported cattle will be twenty-five dollars, while cattle bred in this country will be registered at the old rates of one dollar, or two dollars. No one can register imported cattle except a member of the Association, and no one can become a member unless he is a citizen of the United States. The new Association will have an advanced register similar to the one now in use by the Dutch-Friesian Association. The two Associations are to meet in Buffalo after this number goes to press, and will undoubtedly ratify the work of the Committees, and form the new Association, elect its officers, and adopt the necessary by-laws and rules. In the meantime proper legislation is to be obtained to incorporate the two old Associations into the new one, thus avoiding confusion.

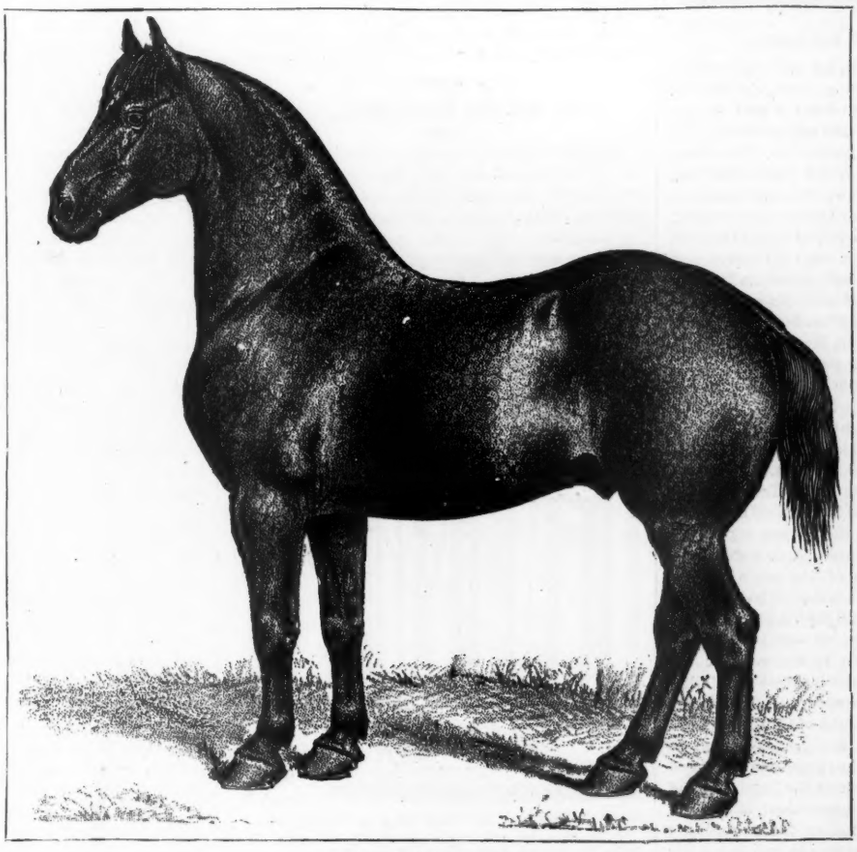
The Most Profitable Horses.

Farmers make a mistake when they slight the advantages to be derived from keeping good horses, and from breeding a pair or two of colts every year. A three-year-old colt can be reared as cheaply as a cow of the same age, but while an ordinary price for a young three-year-old cow is forty dollars, a young colt is worth seventy-five dollars, at the very least, when a year old, and one hundred and fifty dollars when three years old. If, however, a good thoroughbred sire is used, at the cost of fifty dollars, the colt at three years may easily be worth three hundred dollars. Roadsters in the North, and saddle horses in the South (both are really roadsters), are the most desirable animals to rear. A southern farmer speaking on this subject some time ago, said, "What we want here is a good thoroughbred stallion, which would give us good, easy-gaited, stout, hardy roadsters, which could do forty miles a day inside of six hours. For the use of such a sire we would be glad to give fifty dollars, and the man who would bring such a horse into this country, would make a large profit." It is equally true for the North, where a roadster, which could make a mile to a depot in four minutes, or ten miles in an hour, would easily bring two hundred and fifty dollars, and one hundred dollars more for a minute less. The thoroughbred blood is like the steel one puts into a machine; it gives strength, firmness, lightness, durability, elasticity and vigor into the cold blood. The bone is harder, and more solid, and lighter; the sinews are stronger and more elastic; the muscles are firmer, and have greater tension; the lungs are more capacious; the weight is reduced, and with more strength and vivacity of motion, and less weight, we have swiftness and ease of movement. There are two points to be thought of in rearing colts, namely, the dam and the sire. Many good sires, and the money the service costs, are thrown away upon poor or diseased mares. The first thing to be done then, is to secure a pair of good, young, sound mares, of fair size and good disposition. With such a pair of mares, the owner should seek a good, thoroughbred sire, and be willing to pay a good price.

The portrait of Jerome Eddy, given on this page, is a typical illustration of such a horse as is required for this purpose. He is an unusually fine animal, having a record of 2.16¼, and a quarter of a mile in 2.12. He belongs to the Hambletonian strain, and has the blood of Eclipse and imported Messenger in his veins. He has been in the stud a short time, but his colts are already distinguished. Jerome Eddy is at the head of the stud of the Jewett stock farm, at Aurora, Erie County, New York.



JEROME EDDY.



PERCHERON HORSE, GARDA.

Percherons and Percheron-Normans.

There are Percherons, so-called, which are not Percherons. Normans are not Percherons, any more than Pennsylvanians are Virginians; but they are both French, as these are Americans. Perche is an ancient province of France, and lies south of Normandy, adjoining its southwestern border. Perche has long been known for its splendid breed of horses, which have been reared with much care and jealousy, and which date back in breeding to Arabian blood. Normandy has also its breed of horses, equally ancient, but coarser and heavier; they were used a thousand years ago in war, when an enormous weight of steel armor was borne, both by the rider and the horse. To bear the burden, and to ride down an opponent by mere force of shock, very heavy horses were required, rather than more active ones, and the Norman horses thus became, as they are still, the heaviest race known. The Percherons, on the other hand, were used for carriages, and are now the stage, omnibus and diligence horses of the country, able to trot with ease ten miles in an hour, with a heavy vehicle behind them. These are consequently more finely built, have harder and finer bone, and while quite heavy, look lighter than they really are, because of their fine proportions, due to their Arabian ancestry. The large importations into this country of French horses, which have become so popular in the Western States, have long since exhausted the available stock of true Percherons, and importations of this class of horses ceased several years ago. There are, however, many fine animals of the true Percheron breed existing, which have either been imported, or have descended from imported stock. One of these is the stallion Garda, whose portrait appears upon this page, and which is the property of the owner of Jerome Eddy. He was imported in 1881, is black in color, and weighs eighteen hundred pounds. This breed of horses is of the greatest value for farmers' use, as well as for breeding for sale. The tendency now is, towards the use of larger horses than have been employed heretofore. We are necessarily following the lead of the English and French people in this respect. As the

necessities of civilized nations are alike so they must all follow in the same way to meet these needs, and so long as horses are used as beasts of burden, we shall require large, heavy animals to move our large loads. We have now, in America, all the known large breeds of horses, but of all of them, the Percheron has taken the strongest hold upon the popular favor. This is simply because it is the right animal in the right place, and meets a popular demand for the necessities of the commerce of large cities; and as this commerce is rapidly growing, it is not at all probable that farmers can get ahead of it in rearing horses for its use.

A Wooden Hay Press.

A correspondent in New Mexico, who is distant from railroads, and where iron is not to be had,

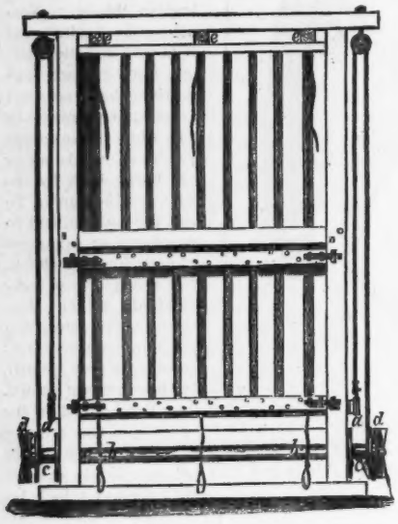


Fig. 1.—FRAME OF HAY PRESS.

wants a hay press which can be made entirely of wood, and worked by ropes and without chains. Such a press as this, will become useful on the plains, where hay will be made and moved about much more commonly than heretofore. The enormous losses of live stock on the plains the past winter, have changed the views of cattle owners in regard to the provisions for shelter and feeding, and as it is found to be a saving of money to feed and shelter the stock, rather than to starve and freeze them, hay will be cut and baled, and drawn to the stock camps in hundreds of places where it has never been before. The press here illustrated, may be made wholly of wood, hewn to the right size, and put together with wooden pins. Not a particle of iron need be used in it. The frame, figure 1, is four feet long inside of the posts, and three feet wide. The hight is eight feet. The movable bottom is raised by ropes which pass over pulleys or rollers if no iron is to be used, and are wound upon the rollers at the bottom. This roller is moved by bars to be inserted in mortises cut in the roller, similar to the manner used in moving a windlass, or a capstan on shipboard. A movable door is made to fit the bottom of the press on one side, for the purpose of removing the bale after it is pressed. The bale is bound with a strong cord, pieces of which are placed on the bottom, and others on the top, as shown in figure 1, and the ends are fastened when the bale is pressed as tightly as possible. It is then reduced to two and one-half feet in thickness, and eight of these bales will make a ton. The hay is easily transported in wagons when baled, and the press can be moved from one meadow to another as the hay is cut and pressed, or it will be more convenient at times to drive the cattle to the hay, rather than move the hay to the cattle. Hay may be cut and baled for about one dollar per ton. Figure 2 shows the end view of the press, figure 3, the movable bottom, and figure 4, the pressed bale. When the iron can be procured without great expense, it might be well to use the pulleys and slotted wheels as here shown, but otherwise these parts may be made of wood.

Seeding to Grass.

The too common failure of grass seeding, is due to neglect of the fact that grass requires as much care and as good treatment as any other crop. It is unsafe to suppose that grass will succeed anyhow, and that it may be sown in any sort of careless manner. On the other hand, we have learned by costly experience, that grass requires the very best preparation of the soil, and the most careful seeding. On this account, it is no longer advisable to sow grass seed upon fall grain, leaving it to all the risks and chances of the season to succeed or fail, as it may happen. Our greatest need now is, to grow more grass; not more acres, but more to the acre, leaving a larger area of ground for fodder and root crops. This can only by done by better preparation of the soil, and better seeding. Instead of throwing the seed in a haphazard way upon the hard, weather-beaten surface of the ground in the spring, the seeding should be postponed until the grain is cut and harvested. The soil is then to be plowed with a shallow furrow, thoroughly well harrowed, and made fine and compact. The seed must be sown, and immediately brushed in with the smoothing and brush harrow, which is easily made. This levels and firms the soil, as well as spreads and covers the seed. It is well to use this harrow crosswise of the harrow marks, and across the line of sowing, so as to spread the seed more evenly. It is better still to sow the seed both ways, half each way, if the sower is not able to spread it quite evenly. The even sowing is very important, because bare spaces are a great injury in two ways; one, that the ground is vacant, and will produce weeds in the bare spots; the other, that the grass is too crowded where it is too thickly sown. Grass seed, if sown as here directed, will start up quickly and grow rapidly; if the seeding is done in July or early in August, the young grass will be strong enough to resist the winter safely, and a heavy crop will be the result.

Cut the Grass Early.

I usually commence haying a little in advance of my neighbors, and last year I was in the field a week earlier than ever before. I was well satisfied with the plan at the time, and am still better pleased

Fig. 2.—END VIEW OF HAY PRESS.

with the result since feeding the hay to my cows during the winter. True, I found, as some of my neighbors had said, that it did not "spend as well;" but that was just what suited me. If a cow will eat and digest a ton of this hay in the same time that she would be worrying over fifteen hundred pounds of the woody fibre cut late in the season, and if she will obtain therefrom twice the amount of milk and butter that is obtainable from the latter, I can see no cause for being dissatisfied with the result. Any one desiring to do so, can make it last as long as the indigestible kind, for the stock can be kept in an equally good condition on

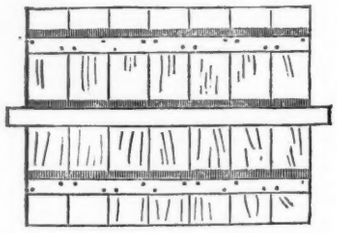


Fig. 3.—MOVABLE BOTTOM.

a less amount of the former, than of the latter. If one could cut all his hay at precisely the hour he desired, there would be no hesitancy in mowing it, as a rule, when in blossom. But since he can not

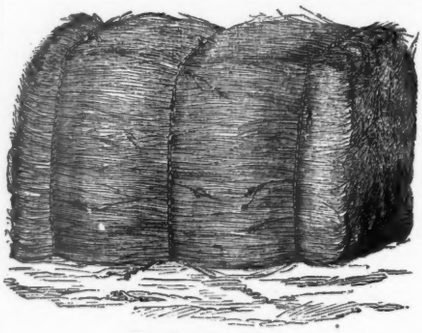


Fig. 4.—HAY BALE.

do this, it is better to commence with some a little too early, than to be a great deal too late in finishing the work. Some fields can be cut twice during the same season to good advantage. The extra yield and superior quality will more than pay for the additional expense incurred. This plan has a few decided advantages, among which are these: It permits one to commence his haying earlier, and finish later, thus giving him more time in which to perform this work, and enabling him to do it with a less amount of extra help. Such help as he must have, is more readily and cheaply obtained before the majority commence and after they are through, than during the very busiest part of the haying time. The first cutting destroys many weeds before they have matured, and the hay is not filled with seeds, to be sown when the manure is spread the following year. And the second cutting destroys another crop of later weeds, or of such as spring up and mature quickly. One of the greatest mistakes a farmer can make, is to allow coarse hay on low ground to stand too long. The common opinion prevails that there is no hurry about getting into these fields. I often see patches of blue-joint five or six feet high, standing until late in August, or the first of September. The stems get so coarse and woody, that cattle have to be pretty hungry before they will do more than strip off the leaves and tops of such hay. When cut in June there is less in bulk, but more in value. For each acre will yield a greater number of pounds of such as the cattle will care to eat, than the same acre left until the last of August. C. L. HILL.

GATHER MATERIALS FOR MANURE.—The manure harvest lasts all through the year. Even while a farmer is plowing and planting, he may be gathering materials for manure. No wagon should ever be brought home empty. The farmer should ever be on the lookout for fertilizing matter. He should not be above gathering the waste matters about the towns and villages, which he should find ways and means of collecting, so that he may never return empty-handed. These small economies pay largely.

What a Dairyman should Be.

The first requisite for success in the business of dairying, is the dairyman. Not every man can succeed in this business. There are some special qualities needed in a dairyman, just as there are in persons who engage successfully in other pursuits. Success depends very much upon the natural possession of these characteristics, or at least such a natural fund of common sense, perseverance, industry, and tact, as will enable him to train himself for his chosen business. Any man who will make a good farmer, can become a good dairyman, if he so desires, and that, without any special course of education more than he can give himself by the aid of any simple manual, which gives plain but accurate directions for the various operations to be performed. Dairying is to be regarded as a science, and the production of good milk, butter, or cheese depends upon a close observance of its rules, and it is to the precise practice of these rules, that the dairyman must train himself.

Cleanliness is the first of these conditions. Without it the dairyman is like a boat at sea without a rudder; he can not tell where he is going, excepting that he will go anywhere but to the point he desires to reach. His product will never be good; it may vary in badness, but that is the best he will be able to do. He must, then, be able to realize precisely what cleanliness is. It is an exceedingly comprehensive virtue. It refers to the air breathed by his cows; to the condition of their skin; to the water supplied to them; to the kinds and condition of the fodder, and the food used; to the kind and character of the utensils used; to the place where the milk is kept, and to the surroundings of it, which influence the character of the air or water admitted into it; and to the person, and clothing, and habits of the dairyman. As the utmost purity everywhere, and in all things connected with the business, is indispensable to success, the dairyman should possess a natural instinct of cleanliness; or by study, observation, and practice, should learn what it is. He must realize fully that as "dirt is anything out of place," so whatever is out of place in and about the dairy, is injurious to the good quality of his product. Unless this is entirely avoided, a first-rate article can never be produced, and the quality will grade up from very bad, in accordance with the degree of cleanliness observed.

A love for his business and his cows is the next of these conditions. As a good and successful shepherd loves his sheep, so the good dairyman loves his cows. Perfect placidity and happiness among the cows are essential to good milk, and to a large yield of it. Fretfulness and worry waste cream. The dairyman who loses patience, and beats his cows, will never take a premium at a dairy show, nor ever be successful in his business. If he has not patience to so train and rear his calves, that they will follow him about, to treat them with such kindness, that they will not avoid him, when he approaches them, he will carry on his business under such great difficulties, that he soon will be discouraged. If he can not control his anger, when the natural peculiarities of his cows and calves disturb his feelings, he must discipline himself, because he must understand that whenever he loses his temper, he is losing money; and if he can not do so, he will not succeed in a dairy.

A very important requisite is regularity in habits. Regular feeding, regular milking, and the utmost regularity in temperature in keeping the milk, and in all dairy operations, are all indispensable. A man who can never do a thing twice in the same way, or at the same hour each day, or who can never school himself to do it, will be unsuccessful, and will soon have to change his business.

Another indispensable requisite is an observant disposition. There are persons who see, but do not perceive. Such men will never feel at home in the dairy, because they will always be experiencing disappointments and mishaps. A sharp eye to see, and a quick apprehension to perceive the results of common occurrences, are especially necessary in this business. They are attributes of every successful farmer, but are specially required in dairying. Minute and careful observation, a habit to take every thing in at a glance, will save much trouble, and avoid those common accidents which cause so many losses, and lessen the profits of a dairy.

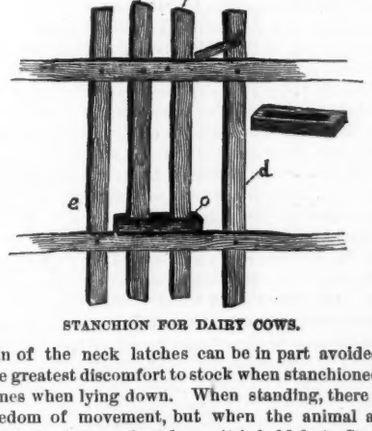
Lastly, a dairyman must be a studious as well as a modest man. No one man knows it all. In the multitude of counsellors there is wisdom—in dairying—and a good dairyman will study everything within reach that will directly or indirectly aid him in carrying on his operations in the field, the stable, and the dairy. He will not scorn or refuse to learn from the brother dairyman, who can impart any idea, or relate any experience, and will be ready to consider any suggestion that may be offered, and that may seem worthy of notice. There is always much to learn. Although it is an exact science, comparatively little of it has been reduced to practice, and very few pursuits are so intricately involved in a multitude of difficulties as the business of the dairy. The most useful studies for a dairyman are: the science and art of feeding, on which there are several very excellent manuals; animal physiology and anatomy, with some relation to diseases, and the observance of sanitary measures; the science and art of manuring the soil; chemistry, of which a simple hand-book will be exceedingly useful; and lastly, some simple, practical manual of dairy practice, in which the various operations are fully described and explained.

Wasting Manure.

Market gardeners sometimes use a ton of superphosphate per acre. It is a great waste. Five or six hundred pounds is all the crop needs. And the only benefit derived from the excess, is due to the nitrogen and potash the fertilizer may contain. For the sake of getting a pound of nitrogen, you use three, four, in some cases even five or six pounds of phosphate, which the plants do not need. Intelligent market gardeners should study this subject. Better use five or six hundred pounds of superphosphate and purchase the required nitrogen in some cheaper and more available shape—such as dried blood, sulphate of ammonia, nitrate of soda, or other.

Stanchions for Dairy Cows.

The chief objection to the stanchion, comes from its rigidity and vice-like grip, and any improvement in it should be in the direction of comfort to the animal, rather than in handier ways of fastening. The accompanying engraving shows how the rigid



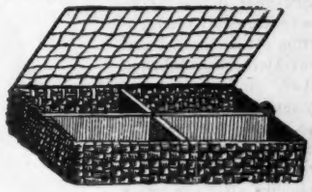
STANCHION FOR DAIRY COWS.

plan of the neck latches can be in part avoided. The greatest discomfort to stock when stanchioned, comes when lying down. When standing, there is freedom of movement, but when the animal attempts to rise, or when down, it is held fast. Stanchions made as here shown avoid this. The neck latches *a*,*b*, are not fastened at the bottom, but pass through the slide block *c*, which rests on the lower stringer. By making this slide block about eight inches shorter than the space between the uprights *d* and *e*, a swinging motion is obtained that gives considerable freedom. The bolt through the neck latch, *a*, in the upper stringer, should not be screwed up snug, but leave the latch a chance to play. It is usually the plan to set stanchions in a perpendicular position, and if the upper stringer is pitched over towards the manger about eight inches, a great gain is made in the ease afforded the animal when it gets up, as its shoulder by this plan, does not strike squarely against the latches, and avoids the necessity of "hitching back," to clear the stanchions, and thus prevents the extra strain and exertion often noticed in perfectly rigid, and upright stanchions.

J. G.

Basket for Shipping Chickens.

A very convenient basket for shipping live poultry, especially chickens, for a distance of five hun-



BASKET FOR SHIPPING CHICKENS.

dred miles more or less, is made of splints, or coarse osiers; the ash or white oak splints are the lightest and strongest material. This basket is about four feet long, three feet wide, and nine or ten inches deep. It is divided into four partitions by thin boards, or a suitable piece all in one, made of splints or basket work, and fastened to the sides of the basket by pieces of cord or wire. The cover is made of a piece of wire netting, of two-inch mesh, around the edge of which is woven a strong splint, and the wire is turned down over this and fastened securely. The lid is fastened down in any secure manner. A strong cord handle is made on each end. The bottom is closely woven of strong splints, and when the fowls are shipped, it is covered with sawdust to keep them clean. The four compartments prevent the birds from huddling too much together, which is the only danger to be provided against, and which if not prevented, may lead to the loss of several of the chicks. These baskets are returned in "knock down" shape, the middles are taken out, and the covers are removed; the baskets are set one in another, and made into bundles; the loose middles are packed into the top basket, and the covers are all fastened on the top. The cords used in putting the baskets together, serve to bind the bundles when they are returned. Leather address tags are used, on which the shipper's and the consignee's addresses are printed. This mode of packing chickens has been found very convenient and safe, as well as economical of freight, the baskets being much lighter than boxes, and also more durable.

Sorghum.

The history of sorghum with us, dates back only to 1853, when a little seed was obtained from Paris, which had been sent from China by the French Consul at Shanghai. Five years later the *American Agriculturist* distributed to its subscribers no less than twenty-five thousand parcels of sorghum seed, and laid the foundation of what bids fair to be a great industry and source of wealth to the country. Long regarded as mainly valuable for forage, its merits as a sugar-producing plant have been prominently brought to notice by the efforts and investigations of Dr. Peter Collier of Washington, who has clearly demonstrated that sugar may be made cheaper from sorghum than from any other source. It is reported that the Hon. Norman J. Colman, Commissioner of Agriculture under the new administration, has made a careful study of this subject, and has long regarded sorghum with favor. If Dr. Collier should be called to his former position in the Department of Agriculture, it would be interesting to watch the development of the scientific investigations made by him, and the *American Agriculturist* would take especial pride in seeing great results springing from seed sown by it so many years ago, and with so beneficial results.

The Striped Maple.

Among our native maples, one of the most interesting is the Striped Maple, *Acer Pennsylvanicum*, which is in some localities known as Moosewood, and as Striped Dogwood. It is found most abundantly northward, where it extends from Maine to Wisconsin. Southward, it is found along the mountains as far as Virginia and Kentucky. It is a small tree, rarely reaching over thirty feet, and frequently met with not over half that hight. The smooth, light-green bark, striped lengthwise with dark lines, makes it conspicuous and readily distinguished from other forest trees. The leaves are three-lobed at the apex, and finely and sharply serrated, and make up a dense, heavy foliage. The racemes of flowers are greenish, and appear at the ends of the branches after the leaves appear; they are followed by fruit, the wings of which are large and divergent. The engraving gives the end of a twig at flowering time. The wood of this species is regarded as more durable than that of any other maple, and were it not for its small size, would be highly valued. In view of the strikingly ornamental character of the Striped Maple, it is surprising that it is so seldom met with in cultivation. Its moderate size makes it suitable for small places, while in habit and character of foliage it is most desirable. The seeds of this species ripen in the fall, and like those of the Sugar Maple, should be kept in sand during the winter, and sown in early spring. In Europe it is grafted on the Sycamore, when it grows several times larger than when on its own roots.

STRIPED MAPLE (*Acer Pennsylvanicum*).—BRANCH AND FLOWERS.

Mulching Trees and Shrubs.

A. S. FULLER.

A very noted English arboriculturist says:—"Mulching consists in laying a circle of litter around newly-planted trees to retain the natural humidity of the soil." This is certainly a very brief and incomplete description of both the operation and the benefits to be derived therefrom. It is, however, about as much as has been claimed for it by tree-planters in this country, and for these and other reasons comparatively few persons think that mulching trees is sufficiently beneficial to pay for the cost of material and its application. To say that the material applied as a mulch is merely "to retain the natural humidity of the soil" is certainly claiming very little for one of the most beneficial operations which the tree-planter can practice, especially in all hot and naturally dry climates, or in one like that existing throughout the greater part of the United States.

There is seldom a summer during which we do not have a drouth, extending from a few weeks to months, and during the dry weather the temperature ranges high, and hot winds sweep over the earth's surface, causing rapid evaporation of moisture therefrom. Even in seasons when there are no protracted drouths, there is seldom a superabundance of moisture in either the air or soil. Of course we are speaking of good, arable lands and not of swamps and bogs. In the older States, where the forests have been in great part destroyed, as well as in the prairie region of the West, the securing of sufficient moisture to insure the lives and healthy growth of trees and shrubs is a problem engaging the attention of all fruit-growers and arboriculturists. It is true, as usually claimed, that in mulching trees we seek to keep the soil moist under the mulch and about the roots, but this is not the only object, for absolutely pure water will do very little toward supplying the elements necessary for the growth of plants. Water is probably the nearest to a universal solvent of any liquid known, and it is the principal vehicle for conveying to the roots of plants those organic and inorganic constituents of which they are composed. The most abundant element in plants is carbon, and forms from forty to fifty per cent of all plants usually cultivated for food for man or domestic animals. When wood is charred the carbon is left—common charcoal being an impure form of this substance. Carbon is insoluble by itself, but when united with oxygen in the form of carbonic acid, it is readily taken up, either in the gaseous state by the leaves of plants, or in combination with water and air by the roots. Carbonic acid is always present in the air, averaging about one part in two thousand, and in a humid atmosphere the quantity is much greater than in a dry one. Professor Normandy found that while a dry atmosphere contained only one part of carbonic acid in four thousand, the air held in solution in water contains from forty to forty-two per cent. of carbonic acid, and from this we can readily understand how the air carried down to the roots of plants, supplies an immense amount of material for building up both roots and stem. Ordinary rain water contains on an average, fifteen cubic inches of oxygenized air per gallon, and about six per cent of this is carbonic acid. If the surface of the soil is kept open and porous by frequent stirring, the water, falling upon it at the time of summer showers, goes down to the roots with its carbonic acid and nearly four per cent of nitrogen—both very important elements of nutrition. Cultivated soils admit water freely, but as is well known, heat expels air from water, and with it much of the carbonic acid which, for the benefit of the plants, had better be retained, where it is likely to do the most good. When the surface of the ground is fully exposed to the direct rays of the sun, it becomes very hot, especially in warm climates, and the result is a rapid evaporation of moisture, air, and the important gases named. By covering the surface with some kind of loose, fibrous material, we not only facilitate the admission of air and moisture, but prevent the rapid evaporation of the latter at a time when the plants need it most, and the elements which go to make up the greater part of their bulk. It is claimed, that plants both absorb and exhale carbonic acid through their leaves, but the amount must be infinitessimal in comparison to the amount taken up by the roots, for were it not so, the husbandman would only need to hang a few bottles of certain kinds of gases in his orchard or fields, to insure himself a good crop. But we know that something more substantial is required, and we are compelled to plow, harrow, and hoe, and add various kinds of fertilizers to the soil, when it loses its natural fertility, else crops fail.

We have only to look into any of the great forests, to see the effects of continued and thorough mulching, without cultivation. Carbonaceous matter abounds both in and on the surface of the soil, and it is in such a loose and open condition, that aërated water can enter freely with whatever elements of fertility it may contain; and further, the oxygen of the air attacks the insoluble carbon, and combining with it, forms carbonic acid, thus assisting in the nourishment of plants, and especially that of the trees and shrubs.

In mulching newly planted trees, or those set for some years, we not only prevent suffering for want of moisture during the dry weather in summer, but enable them to obtain those elements, which they require for nourishment and growth. In selecting a material for mulch, one of a fibrous nature, or at least one that will not become compact and hard, after being beaten some by heavy rains, is always preferable to any other. The more plant food the material contains, the better, and for this reason coarse litter from the stable or barnyard has no superior for this purpose. Meadow hay may be ranked next in value, then straw, corn stalks, bog hay from low lands, and thence downward in the scale to pine or basswood shavings and sawdust. Almost any material that will shade the surface of the soil, and admit air and water, will prove of great benefit to newly planted trees, and frequently restore to health the old and feeble, or those stunted in growth from lack of moisture at the roots, and those fertilizing elements, that can only be absorbed and utilized when presented in a liquid or gaseous form. Even small stones may answer.

The Garland Flower.

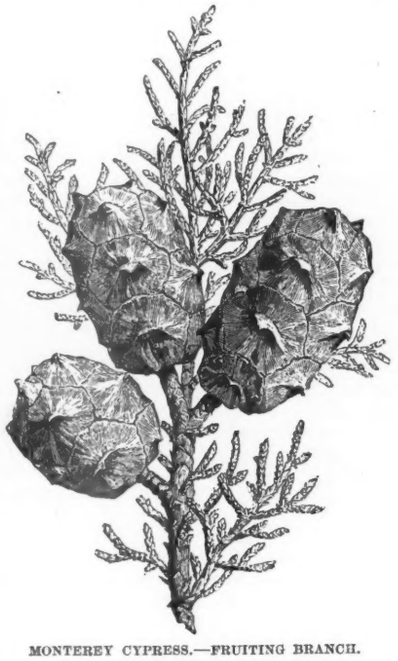
Among the plants that one can never have enough of, is the Garland Flower, *Daphne Cneorum*. It is a dwarf shrub, the trailing branches of which are rarely over eight or ten inches in hight, and are clothed with evergreen, narrow leaves about an inch long. Each division of its branching stems, bears a compact umbel-like cluster of small, four-parted flowers. The flowers are rosy-lilac in color, the unopened buds being bright crimson. The fragrance of the flowers is remarkably sweet, and fills the air in the vicinity of the plant. It blooms in early spring, and usually bears, moderately, again in autumn. A native of the high mountains of Europe, though it has been in cultivation for over a century, it is but little known, and rarely seen in our gardens. In its native Alps, it carpets wide areas of the rocky surfaces in the most charming manner, and is one of the best plants for artificial rock-work, if that is properly constructed, with complete soil connections with the earth on which it rests. The engraving shows the trailing

GARLAND FLOWER (*Daphne Cneorum*).

habit of the plant, and the detached cluster gives the real size of the flowers. The shrub succeed admirably in the border if the soil is peaty and sandy, but in a heavy, close soil, it is quite sure to fail. The temptation to cut it is so great, that well grown plants are rare. An old plant with its numerous branches forming a rounded clump, studded with its bright, fragrant flowers, is a charming sight, and one worth working and waiting for. It is propagated rather slowly from cuttings, and more readily by layering. There are other Daphnes, much taller, hardy and tender ornamental shrubs. The name is from the Greek mythology, and was originally applied to the Laurel, into which tree, according to the fable, a nymph was transformed to escape the pursuit of Apollo. The specific name, *Cneorum* (pronounced as if written without the *C*), is an ancient Greek name for one of the Daphnes.

The Monterey Cypress.

As we have on several occasions shown, there are a number of evergreen coniferous trees, which just



MONTEREY CYPRESS.—FRUITING BRANCH.

escape being hardy in the Northern States, that may be enjoyed by those who live at the South. The Monterey Cypress (*Cupressus macrocarpa*), is one of these. It has every good quality to commend it for general planting, save that it is not hardy north of Virginia. Wherever the climate is favorable, this should find a place among select ornamental trees. A native of California, it is only found in a remarkably restricted locality, near the old Spanish-American city of Monterey, and directly upon the coast. In this locality the tree reaches an average hight of fifty feet, though some have grown to seventy feet, The usual circumference of the trunk is ten feet, but specimens have been measured with a girth of eighteen feet. The branches are numerous, closely set, and horizontal, with the extremities turned upwards. The foliage is of a beautiful bright-green, that is characteristic of the species. The cones, which are clustered on short, stout stalks, are from an inch to an inch and a half long, and nearly an inch wide. Being larger than the cones in any other species of Cypress, the specific name, *macrocarpa*. large-fruited, was given to it. The Monterey Cypress was introduced into England in 1838, by Mr. Lambert, where it has since been an extensively cultivated species. Like some other evergreens, it varies greatly from the seed, and seedling forms are cultivated in England under a variety of names, *Cupressus Lambertiana* being one of the most common. The old trees of the Monterey Cypress have a broad, flat top, which give them much the appearance of a full-grown Cedar of Lebanon.

Profit in Small Fruits near Large Cities.

E. P. ROE.

Long experience has taught me that profit in growing small fruits for market lies in the direction of quality, not quantity. This certainly is true of the larger cities, and especially so of the New York market. There was a time when a strawberry was a strawberry, and consumers had little ability to discriminate, but this period has passed away. General attention has been called to the fact that there are distinct varieties of strawberries, as there are of apples, pears and grapes. Wm. Cullen Bryant, the poet, wrote an editorial for his paper, the "Evening Post," years ago, wherein he inveighed against the Wilson type, declaring, in effect, that it was raised solely for the benefit of producers, because its hardness enabled it to endure carriage, and that to the consumer it meant colic. I know of a fruit-grower who sent hundreds of bushels of this variety to New York in one week. After receiving his returns, he found that his immense shipments had brought him a little in debt. One crate of fine berries would have yielded him a profit.

Of one thing we may be assured. There will always be an abundance of small, inferior fruit in market. Multitudes of growers will continue to give the old, careless style of cultivation, hoping that, in some way, Nature will make up for their deficiencies. Old, weedy beds will be picked over and the fruit forwarded for what it will bring. Moreover, under the best treatment there will be crates of culls and small berries towards the end of the season. These usually bring almost what they are worth and help to meet expenses, but we doubt whether this class of fruit pays better when sent to large cities than a crop of potatoes or field corn on the same area of land.

Now I would like to suggest to growers whose eyes follow these lines, that they take a piece of ground and make it very rich. Plow under barnyard manure—that from the cow-stable is the best—or well-decayed compost, at the rate of fifty to seventy-five tons to the acre, and plow deep. Set out this ground with the largest and most approved varieties, the plants one foot apart in the row and the rows three feet apart. Keep all runners off and give thorough cultivation. Protect from winter frosts carefully, and see if one acre will not give more profit than ten acres under slovenly culture.

But many will say, we have already set out our plants, either last fall or this spring. How shall we manage these beds? Let me illustrate my view. There, for instance, is a strawberry plant that, about May first, is well established on ground more or less enriched. It was set out last fall or this spring. Its first effort will be to produce berries which, because of the immaturity of the plant, will be too small and few to be of any practical value. Yet, if left to mature, they would dwarf the plant and drain its vitality. How many thousands of plants I have seen in almost a dying condition, because allowed to bear fruit not worth picking the same season after planting! Pick off all the blossoms, as fast as they appear, from these young plants, and thus avoid exhaustion.

This being done, the next effort of the young plant, during the summer, is to make runners, and every runner takes just so much vitality and strength from the parent plant. Cut these runners off as soon as they show themselves—one small, active boy can keep acres free—and you will find that the plant, curbed in the direction of self-propagation, has no other way of disposing of its vitality than that of forming fruit-buds for the coming year. The plants of most varieties will bunch up until you cannot cover one with a peck measure. The foliage of the long rows thus treated will touch across the space of three feet intervening between them. The cultivator, narrowed down, can still pass between them and keep the ground mellow and therefore moist, and the hoe can finish most of the work, leaving little hand-weeding to be done. These narrow, bushy rows can easily be covered with light litter at the approach of winter, and uncovered early in spring. As soon as the ground is dry enough—during April in our latitude—the cultivator should again pass between the rows, and then the ground is ready for the mulch which is to keep the fruit clean. I do not believe in the theory that the soil around bearing plants should be undisturbed in the spring. Of course, if the beds are neglected until the plants are coming into blossom, it is true; but if the cultivation is done early, when the plants are just awakening from their dormant condition, the stirring of the soil stimulates growth and productiveness. More than all, it prevents the ground from becoming hard, baked and sodden. It takes away nearly all danger from drouth, the chief enemy of the strawberry. But it must be done early, and the mulch promptly applied to the mellow soil, which is thus kept mellow by the mulch, and will remain moist until the fruit has matured.

The grower's aim is not to send the greatest number of berries to market, but to secure the largest degree of profit; and if a quarter of the ground usually planted were treated in the way I have indicated, this profit would be obtained. Too many strawberries are grown. The market is constantly glutted with inferior fruit. Let growers figure on the difference between the returns received from shipments that bring twenty-five cents per quart and others that bring only five cents.

On very light, sandy soils, I am told that plants will not bunch up, even if the runners are cut, and that the matted-row is the only method in which strawberries can be grown profitably. This may be true, but I am satisfied that on any soil containing a fair percentage of loam, the cultivation that I have suggested will secure the most profitable returns, except in those regions where the fruit is bought by the quantity without regard to size or quality. The same principle applies to raspberries. Fine fruit cannot be grown in patches half swamped by suckers. Except the very few needed for bearing the coming season, they should be treated as weeds. At a later date I shall try to give my views in regard to the summer planting of strawberries.

Coca.—What is Cocaine?

The discovery that Cocaine will produce local anæsthesia, or insensibility to pain, is next in importance to the discovery of the properties of ether. Cocaine has of late been used in important operations upon the eye; this, and especially its recent employment to allay the pain in the terrible dis-

Fig. 1.—COCA.—(*Erythroxylon Coca.*)

ease under which the illustrious patient, General Grant, has suffered so long, have given it unusual prominence. To meet the popular desire to know something of this agent, we give an account of the plant from which Cocaine is derived. The ear-

liest European travellers in Peru, mention the use, by the natives, of a leaf, which they chewed to produce a stimulating effect, similar to that of opium. The leaves, known as Coca, are from a shrub which bears the same native name, and is cultivated in Huanuco, and other mountainous provinces in the Peruvian Andes, which have an altitude of two to five thousand feet above the sea. The shrub reaches the hight of six or eight feet, and has thick, evergreen leaves. The form of the leaves, as well as the appearance of a small branch in flower, are shown in the engraving. The structure of the flower would not allow the plant to be placed in any of the families already established, and a separate one was made for it. The name of the genus is *Erythroxylon*, which means red-wood; several of the species, natives of tropical countries, having wood of a red color. The specific name of the Peruvian species, is that given to it by the natives, hence its scientific name is *Erythroxylon coca*. In its relationship the shrub is nearest to the flax and the geranium families. The shrub is cultivated in a rude manner by the natives, who raise the young plants from the seeds, to form plantations known as *Cocals*. In from three to five years from planting, the shrubs afford a gathering of leaves, and after that a picking is made annually. The leaves are mature when they break on being bent. They are dried on platforms, or on a portion of ground made smooth by stamping. The leaves when dry, are packed in bales of about eighty pounds, which are covered by a coarse cloth made by the natives. In this form it is an important article of domestic traffic in Peru, and recently it has been sent to this country and to Europe in considerable quantities. The wholesale value of the leaves is from one dollar, to one dollar and fifty cents per pound. In Peru, the use of Coca is very general, especially among the natives. The leaves, mixed with lime, are chewed and the saliva swallowed, the individual remaining quiet the while. As the enjoyment of the Coca occurs four times each day, and each time requires at least half an hour, it causes no little interruption to work and to travel. The effects of Coca are said to be most pleasurably intoxicating, and those who become addicted to its use, rarely abandon it. It is claimed that by the use of Coca, the Peruvians can perform a great amount of labor in the mines, and as porters in carrying loads, upon very little food. The active principle, Cocaine (not "Cocoaine," as sometimes incorrectly written), has been separated. The process is expensive and the product small, hence the price has been very high, the salts of Cocaine having been sold at over a dollar a grain. In view of the probable increased demand for Coca, it would be proper for our Department of Agriculture to consider the possibility of successfully cultivating the shrub within our own territory.

Fig. 2.—COCA LEAF.

THICK AND THIN PLANTING.—A few years ago an ingenious farmer planted some sweet corn eight feet apart each way, and in the centers between the rows, he planted melons. The corn made an extraordinary growth of ear, so fine and full of grain, that the ears were eagerly bought by a seedsman at a large price. In the regular market they would have sold to the hotels for two dollars and fifty cents per hundred, which would have been a paying price; but the whole crop was sold for seed for twelve dollars and fifty cents per hundred. The melons made a full crop under liberal use of manure and artificial fertilizers and good cultivation. The two together paid better than any other part of the farm. We have found that it is not always the most profitable to crowd a crop too closely, in the hope of getting the most from the soil.

A Drying-House.

As the season of fruits approaches, the housekeeper, especially if she be a farmer's wife, feels the need of some contrivance which will dry fruits, corn, etc., rapidly and easily. It must be inexpensive, and so simple that the farmer can build it himself. Such a drying-house is shown in the engraving. The house is six by eight, and ten feet high. Four by four scantlings are used for sills, and two by four scantlings are used for corner posts and

EASILY CONSTRUCTED DRYING-HOUSE.

plates. The house is boarded up and down on the sides and back. The front, to a hight of three feet, is boarded up, except a space three feet wide in the center, which is left for a door. Five feet of space above this is left open, as the fronts of the drawers inclose it; above this the front is inclosed. A roof can be made of boards, though a shingle roof is the most durable. The front of the house is eight feet wide. The interior is divided into two compartments, four by six feet. To make this division, two scantlings are required, one up and down the front, and the other in a corresponding position in the rear. On each side of these, reaching from front to rear, are nailed strips, five inches apart from center to center; also, along each side, corresponding slats are nailed to the corner posts. These are for the drawers or trays to rest upon, and should be planed smooth. The lowest one is three feet from the floor, leaving a compartment below for the stove. One of the house stoves is generally used for this purpose, as it is not needed in the drying season. Any old stove that is safe will answer. The door in front of the house must be made large enough to admit the stove, which stands just inside the door, so that fuel may be supplied, and ashes removed from the outside. The pipe passes out through a hole behind, or is run up between the two tiers of shelves, and out at the top. The latter is the better plan, as the heat from the pipe is utilized; but as the shelves are only four inches apart, the pipe must be flattened, or else of a very small size. The drawers are six feet long (outside measurement), and of the same width as the compartments — within a fraction of forty-two inches. The back and sides are made five inches wide, less the width of the strips upon which the drawers slide; the fronts are five inches wide, so that when the drawers are all in, the front of the building will be closed as shown in the engraving. The sides and ends are of inch boards, the bottom of narrow strips or laths, placed half an inch apart. In drying berries, etc, the bottoms of the drawers are covered with mosquito netting, to prevent the fruit from falling through. The house may stand upon blocks set in the ground, or upon four flat stones. The stove being in position, and the pipe adjusted, the drawers are to be filled with fruit, and a slow fire started in the stove. Make but little heat at first, and increase it to a higher temperature without scorching the fruit. The fruit in the lower drawers will dry first. Instead of replacing it with fresh fruit, bring the top drawers down to the bottom, and add the green fruit in the top drawers. The cost of the house is very little, especially if rough lumber is used. It will require two hundred and eighty feet of siding; twenty-eight feet in length of four by four scantling; eighty-eight feet in length of two by four scantling for plates and posts; forty feet of two by four stuff for rafters; sixty feet of sheathing for roof; six hundred shingles, and three pounds of nails to lay them with; three hundred and ninety feet of five-inch boards for sides and backs of the twenty-four drawers; one hundred feet of six-inch boards for fronts of drawers; nine hundred laths for bottom of drawers, and six pounds of nails to nail them on.

Some Trees and Shrubs to be Avoided.

Several of the most troublesome weeds of our fields and grounds were originally introduced as ornamental plants of the garden. Some of these have not yet travelled a great distance, but others are widely disseminated. The Toad-flax, *Linaria vulgaris*, known in some localities as Butter and Eggs, and in others as Ranstead Weed, is a marked example of the latter class. The prevalence of this, in the older States at least, and the difficulty of exterminating it when once established, illustrate a danger that is always impending. Not only may herbaceous plants prove troublesome, but trees and shrubs may be, like fire, excellent servants, but cruel masters. We frequently pass an estate upon which a former proprietor planted a large number of the White, or Silver Poplar, often called Abele (*Populus alba*), a tree well known for its persistent suckering. Large areas in the grounds referred to, are filled with the suckers, forming dense thickets, and the soil is unfitted for any other purpose, unless reclaimed at a heavy expense. This is a useful tree in paved streets, but should never be planted in or near cultivated grounds. The various species of Aralia, including the well-known Hercules' Club (*A. spinosa*), are favorites with us. Their ample and much divided leaves, and the habit of the trees, or

CHINESE ARALIA.

shrubs, give them a peculiarly tropical aspect, and they may be used in groups with other trees with most striking effect. One of the finest of these is the Chinese Aralia (*A. Chinensis*), of which we planted a tree a dozen years ago, or more. We can now truly say that we wish we hadn't. Near the original tree is a thicket of its straight prickly stems about ten feet high. It will travel under ground to

a long distance, and appear in unexpected places. The roots of the tree referred to, crossed under a wide path, and took possession of a rose-bed, which is quite unfitted for its original use. Intending planters should avoid the hardy Aralias in all their forms. The engraving of a young Chinese Aralia shows its remarkably ornamental character, but gives no hint of the mischief of which it is capable. Among the popular shrubs are the spiræas; the Mountain-Ash-Leaved Spiræa (*S. sorbifolia*), from Siberia, is frequently planted, as much for its handsomely divided foliage, as for its large pyramidal clusters of white flowers. It should never be planted with other shrubs, or indeed anywhere else unless a wide area can be given up to it. It soon takes possession to the exclusion of all other plants.

Everlastings for Christmas.

At the time of preparing for Christmas decoration, "Everlasting flowers" will be in demand, and if one has not provided a stock, they must be bought at considerable expense. An abundance of seeds may be bought for a small sum, and we give a timely hint as to their sowing, which should not be postponed beyond this month; the earlier they are sown, the more abundant will be the crop. The term "Everlasting" is applied to flowers usually of the Composite Family, the colored bracts of which have a paper-like texture and retain their form and colors after they are gathered and dried. There

CLUSTER OF HELICHRYSUM BRACTEATUM.

are a number of very delicate everlastings, such as Rhodanthe, Acroclinium, etc., but the most effective for decorative work, to use with evergreens, are the Helichrysums, on account of their large size and showy colors. They are mostly varieties of *Helichrysum bracteatum*, an annual from the Cape of Good Hope. We refer to the seedsmen's catalogues for the varieties and colors. They are rather coarse, much-branched plants, and, with the exception of some dwarfs, grow about two feet high. To have as long a season as possible, the seeds should be sown in frames or window boxes, and the plants set out in June; if early sowing has been omitted, if seeds are now sown in the open ground, and the plants, when large enough to handle, are transplanted to rich soil, they will come on rapidly and give a fair crop of flowers. When the plants get large, they may need to have stakes. The engraving of a cluster of these flowers shows their general form; they vary in color from white and pale-yellow to crimson and brown. As the flowers begin to open, they should be cut with as long a stem as possible, tied in small clusters, and hung, heads downwards, in a shed or airy room. When dried, they should be stored where they will be free from dust, or dampness, which will engender mildew, until needed.

Showy Annuals—Calandrinias.

In his wanderings along the coast of California, and excursions to the islands just off the coast,

MENZIE'S CALANDRINIA (*C. Menziesii*).

over thirteen years ago, the writer was struck with the abundance of flowers. It appears to be a peculiarity of the plants of that locality, that they are gregarious, and grow in such masses as to produce "bedding effects," upon a larger scale than any gardener ever attempted. On some of the islands especially, there were patches of purple and crimson, produced by a few Calandrinias, the seeds of some of which are now offered by seedsmen. The genus *Calandrinia*, was named in honor of an Italian botanist of the last century, Calandrini. It belongs to the Portulaca Family, and consists of fleshy, smooth, mostly annual herbs, with flowers resembling those of the garden Portulacas. The engraving of Menzie's Calandrinia (*C. Menziesii*)—the plants do not appear to have any popular name—gives the general habit of the plants, with a detached flower of the natural size. Like the related Portulacas, these open their flowers only in sunshine. As they do not transplant readily, it is best to sow the seeds where the plants are to flower. They succeed best in a light, warm, sandy soil.

Jack-in-the-Pulpit.

Like many other wild plants, this has various names in different parts of the country. In many localities it is called some kind of turnip. Besides Wild turnip and Indian turnip, it is known as Pepper, Marsh, Dragon, Canada turnip and Bog Onion. The plant is very common in rich woods and in damp places generally, and is found in almost every part of the country, even extending into South America. It is probable that our readers know "Jack-in-the-Pulpit" if not under one of the above names, under some other. The botanists call the plant *Arisæma triphyllum*. It is not exactly clear what the first name *Arisæma*

JACK-IN-THE-PULPIT (*Arisæma triphyllum*).

means; but *triphyllum* means three-leaved, and is descriptive of the foliage. Each plant has two of these leaves, which are divided into three parts; between these in spring, arises the flower-stalk. The curiously shaped affair at the top of the stalk is not the flower proper, but is only a sort of sheath or hood that surrounds the flowers. Within this is found a rounded body or stalk, at the lower part of which are the flowers. These, being closely crowded together and without any showy parts, do not look much like flowers. A bunch of bright scarlet berries grows in the place of these later in the season. The root, or more properly the root-stock, is an inch or two in diameter and shaped enough like a turnip to have suggested many of the common names. It is brownish on the outside and very white within. When touched to the tongue it has an exceedingly burning taste, making the tongue feel numb, as if it had been scalded. This pungency is lost by drying. The root-stock is very full of starch, which may be separated and used as arrow-root. The leaf-stalks and the sheaths or hoods are sometimes green, but more frequently spotted and striped with dark purple. Though usually found growing in moist places, the plant thrives well in the garden. We have known a number of very successful wild flower gardens, where the roots have been carefully dug up from their beds in the woods, and brought under cultivation. Shade and moist soil—better if brought, at first, from the native woods of the plant—should be provided, and very satisfactory results can, with care, be obtained.

The Variegated Golden Tuft.

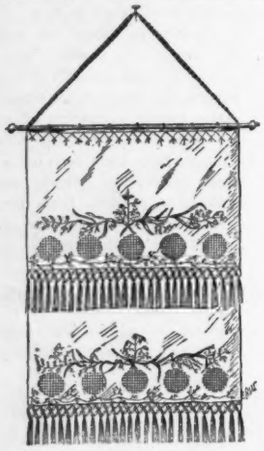
In the fancy which prevailed a few years ago for variegated plants, many among herbaceous peren-

VARIEGATED GOLDEN TUFT.

nials were introduced, which failed to be satisfactory. Under our hot sun, the variegation of the foliage became browned or unsightly, or as soon as hot weather came it disappeared altogether, the later leaves being of the usual uniform green. Among the few perennials which retain their markings, is the Variegated Golden-tuft (*Alyssum Saxatile variegatum*). The perennial Alyssums are low, branching plants, usually less than a foot high. They belong to the mustard family, and have clusters of four-petaled, usually yellow flowers. The name Alyssum, is from the Greek words for *not* and *sage*, as the plants in ancient times were supposed to cure mad dogs; on this account, most of them have the common name, Madwort. The species *Alyssum Saxatile*, from Southern Russia, on account of its clusters of bright yellow flowers, has received the name of Golden Tuft. In its ordinary form, with green leaves, it is a showy plant for rock-work or borders. The Variegated Golden Tuft, has its leaves edged with a distinct border of white, which is retained all through the season. It is useful as a rock-work or a border plant, and is very effective when used for edgings. The normal form may be raised from seeds, but the variegated form must be grown from cuttings, made at the proper time.

A New Style in Rag-Bags.

An improvement on the old style of rag-bag is shown in the engraving. It is made of a white towel, with knotted fringe. Draw circles on the bottom of it, and a little spray or design, and embroider them in red working-cotton. The circles are done in the darning-stitch style. Make a strong white muslin bag, the size of the towel when it is folded over, and sew the towel on the front of it.



NEW STYLE RAG BAG.

Fasten rings on the back part of the bag, and hang it on a rod. The inside of the closet door will usually be found a convenient place for the rag-bag.

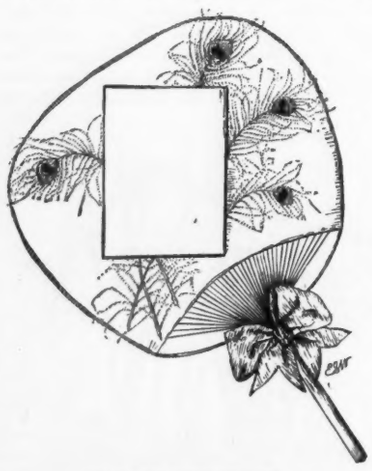
Spring Millinery and Other Novelties.

One of the most noticeable things in the fashions for spring, thus far brought out, are the two extremes seen in dress-making and millinery. For instance, many dresses are very much draped in the back and at the sides, tunics and polonaises are puffed and looped as they have been in past seasons, so that one need not feel old-fashioned in wearing such. Then there are quite as many made with no drapery at all. The straight, full back breadths are box-plaited, and fall plainly to the bottom of the skirt. With some of these the front breadths are trimmed with braid, tucks, etc., others have a long apron-overskirt, looped at one or both sides. In millinery, hats are worn with very high crowns, and are profusely trimmed, but they are worn almost altogether by children or young ladies. Married ladies, or those no longer young, wear the small capote-shaped bonnet. In olden times, it required almost as much courage for a young man to appear in the street with his first tall hat on, as to march into battle. We think it must be a brave girl who will dare to wear some of the styles of hats which are seen this spring. The extremes of these have very high crowns, some of them inclining to a point. Flowers, feathers, ribbons, gold and silver laces, are all massed together in trimmings. A moderately high crown, with close, narrow brim, is the most desirable shape. Silk handkerchiefs or scarfs, bunched up in some careless way, and confined by long pins of gold or silver, trim them prettily, and on one side is added a bunch of flowers. Butterflies made of gauze are a novelty for children's hats. They are placed among the loops of the trimming. For little children, the ever popular sailor shape is retained. They are in red, blue and brown straw. For ladies' bonnets, the small capote, coronet and peaked fronts, are the desirable shapes. The latter is suited to youthful faces only, and the high front is filled in with lace. There are many soft crowns of crape, soft silk, or lace. These have velvet fronts, or a mass of velvet ribbon loops, mixed with lace, is placed high on the top. There are straw bonnets in almost all dark colors to match costumes. These are trimmed with scarfs which come for this purpose, looped high and fastened with long pins, or with wide ribbons, which are coming into use again. A new article, called étamine, which is a coarse mesh, like canvass, is also used for trimming bonnets and hats. Almost any lady with ordinary taste can purchase a frame, and by laying over it any soft material suiting her fancy, in careless folds, and fastening it with a profusion of long, gilt pins, facing the front with velvet, and adding a bunch of flowers high in front, she will have a bonnet in style. Children's dresses are made with great simplicity. For little children, there is the square, tucked, or embroidered yoke, and to this is gathered a full skirt, either white or colored. A band of the skirt material crosses the shoulders, or strings of the same tied in bows. The sleeves are usually white. Sometimes a loose belt or band, is put on four or five inches below the yoke, after the style of short waists worn by our great grandmothers. The white yoke and sleeves are worn by girls of all ages, up to twelve or fourteen years, in cambrics or ginghams, as well as white goods. Another simple style is, to have a plain or tucked skirt, gathered into a belt; to this is added a plain, low-necked waist, buttoned up behind. Under this is worn a guimpe. The front is cut open in a V-shape, and three straps of the dress material placed across it, with buttons at the sides. Jersey waists are more popular than ever before for all ages. Little boys and girls wear them, with gay skirts and sashes. White jerseys are very pretty for young ladies and can be washed. White flannel suits are worn by children, and white wool dresses of some kind, are a part of all complete wardrobes for the summer. They may be found in flannel and serge, as well as in more expensive goods. Gilt, silver, and tinsel threads are woven into many of these goods. White braid, with a thread of gold running through it, trims such goods handsomely. There are white, and also colored wool laces, for trimming summer woollens. Braiding is much used for vests, collars and cuffs, but instead of putting it on flat, it is sewed on the edge to have it stand up. It is very effective put on in this way. Ribbons, both narrow and broad, will be used in profusion with thin dresses. Colored stockings, principally black, but mostly with white feet, will be worn by ladies and children.

ETHEL STONE.

A Fan for Photographs.

One of the latest novelties in which the Japanese fan is brought out, is in the form of a photograph

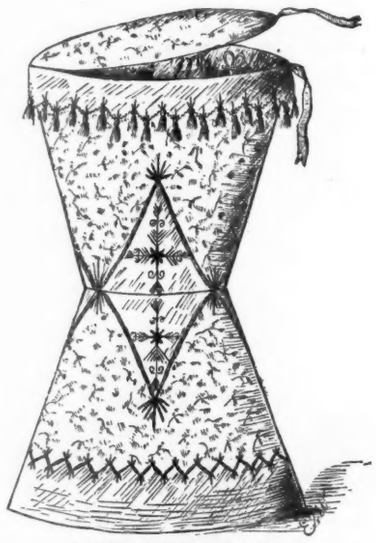


FAN FOR PHOTOGRAPHS.

holder. For an imperial picture, a fan of the ordinary size will be needed. Cut a square or oval opening in the center of the fan, and cover it on the outside with light blue or bright red satin. Select a few small peacock feathers, and sew them on as seen in the engraving, cutting them in two where it is needed. Baste a lining of silesia on the other side, and overhand the edges neatly together around the opening, but not the outside edge. Cut a fan out of card-board of the same size as the body of the one you have covered. Cover it on both sides with silesia, and overhand the two together, leaving a space large enough at the top to slip in the picture. Finish the fan on the edge with a gold cord; having tied a bow of satin ribbon of some pleasing shade of color on the handle, sew two small brass rings on the back to hang it up by.

A Work and Patch Basket.

A commodious work and patch basket combined is made of a couple of peach baskets. Fit a wooden



A WORK AND PATCH BASKET.

bottom in the top of the basket intended for the base; take the bottom out of it, and loosen the hoop a trifle; fasten small cleats on the inside for the top basket to rest upon. Make a pasteboard lid for the upper or work basket. Attach three small casters on the bottom, so it can be readily moved about. Line both baskets with undressed cambric, and cover them on the outside with cretonne, or calico. Make the trimming of any plain color that will look pretty with the cretonne. Cover the lid with the same material after placing several layers of cotton wadding on the top of it. Attach the lid to the basket, and provide ribbons to keep it down. Make several pockets to fasten on the inside of the work basket for buttons, tapes, and other articles. The bottom one is left plain, as it is only intended for bundles and patches.

Arrasene Embroidery.

The material called "Arrasene" is a flat variety of chenille, and comes in both wool and silk. In embroidery it produces very soft and velvety effects. It may be used on silk, velvet, canvas or serge, and is suitable for mantel lambrequins, portieres, and any place where the pile of the arrasene is not injured by friction. In working upon velvet, plush or silk, the material must be stretched in a frame, but if canvas or serge is the foundation, it can be held in the hand. A large-eyed needle is necessary to draw the arrasene backward and forward through the material without twisting. The stitch popularly known as "Kensington," but which is more properly called "feather stitch," is the one generally used. It consists of stitches of various lengths, so taken in between each other as perfectly to blend the colors. The engraving will give the worker a clear idea of it. Thread the needle with a short strand of the arrasene, without knotting it, and work the edge of a petal or leaf in stitches forming a close, even edge on the outline,

converging irregularly toward the center. Then with stitches longer on the upper than the under side, work between the uneven lengths of the first set, and fill in all bare places by stitches starting from the center, and carried between those already executed. Arrasene requires to be worked very closely, and great care should be taken in passing it through the material, to see that it lies with the pile uppermost and does not show the woven center line. When completed, the lines should be undistinguishable from one another, and the surface smooth, rich and even. It is quite effective to work the chief part of the design in wool arrasenes, using that of silk for the bright lights. Clematis and nasturtiums are very beautiful designs for this

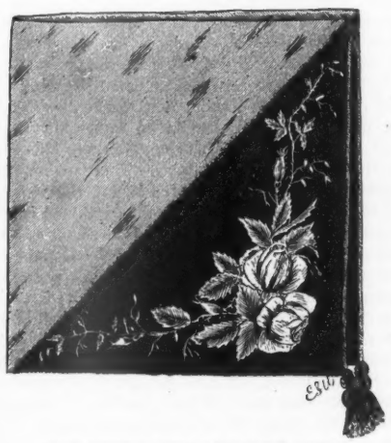
THE ARRASENE STITCH.

work, but the latter is considered very difficult. It is said that whoever can work a nasturtium leaf perfectly, may attempt anything in embroidery.

If the material used is silk, satin, velvet, or plush, and if when completed the work seems drawn and irregular, it must be gummed on the back. Spread a clean blanket on an ironing table, or upon the floor, and lay the piece of work face downward upon it, securing it in place with tacks around the edge about an inch apart. Make some flour paste, boiled with a little alum, and apply it very carefully with a brush upon the back of the embroidery. Do not let the paste touch the material elsewhere. Leave it to dry for twenty-four hours at least, then remove the tacks and roll the work, covered with soft linen or tissue paper, over a round stick. In very obstinate cases, try steaming, by laying a damp cloth over the back and passing a hot iron lightly over it, but not close enough to press down the pile. The work will then be flat, and quite smooth and ready for the upholsterer.

An Ornamental Table Cover.

A handsome cover for a round or square table is made by fitting corners on a square, to form a larger square. The one here illustrated is made



ORNAMENTAL END FOR TABLE COVER.

of a rich shade of red felt, with a corner of a darker shade of velveteen. The roses in the corner represent tea roses; they are formed of silk of the desired color, which is cut into bias strips, folded together, and small pieces of it used to form the petals by pinning the silk on the pattern, twisting it into shape, and sewing it on with invisible stitches. The leaves are cut out of green velvet, and put on with a button-hole stitch, in silk of the same shade. The stem, and very smallest leaves, are worked with arrasene and silk. After the corners have been attached, line the cover with red silesia, or other suitable material, and finally finish the corners with plush tassels of the same shade.

A Novel Match Receiver.

An odd little receiver to hang on the wall, or from the chandelier, is made of a small tin dipper, such as is used by milkmen. Cut a piece of black cloth the width of the cup, and long enough to fit snugly around it. Baste points of yellow felt on it, and then work them with black floss; work the black points with yellow, and sew it around the cup. Make little tassels of the black floss, and attach them at each yellow point. Cover the handle by cutting two pieces of the black cloth a seam's width wider than the handle, trim the front as seen in the engraving, and sew the pieces together on one side in a seam, and overhand the other side together after basting them around the handle.

Tie a bow of yellow satin ribbon through the ring by which it is suspended, at the top of the handle.

A Hint for Charity Fairs.

Everybody asks: "What is there new?" when the time approaches for the annual fair for the support of some charity. We substituted a "Bag Table" for our old time "Apron Table" this year, and it "took" wonderfully. The entire bag family was represented, in every conceivable shape and style. There was the dainty bag, crocheted of silk, holding a ball of wrapping twine, and having attached to it a small pair of scissors, ready to clip the twine at any moment. Then there was a row of bags made of pretty cretonne, called "String Bags," made to hold the strings which accumulate from bundles. For the small boys there was a tempting display of bright bags about six inches long and four inches wide, for holding marbles. For the girls, school-book bags, made of strong Macreme twine. For the young ladies there were delicately tinted party bags, suitable for carrying slippers and fans which are always in the way, unless carried on the arm as these bags suggested. Two or three green flannel bags appealed to some young law students present, with a "Come buy me" air. The housekeepers bought at sight, clothes-pin apron bags, stocking bags and nest bags; which were of three different sizes, labeled "for cotton pieces," "for woollen pieces," "for linen pieces." One housekeeper had given an order for ironing and bosom-board bags, which were made of strong bedticking. There were also a half dozen different styles of dust-cloth bags, with dusters of fancy colors peeping out. Then there were the "upper crust" bags, made of soft velvets and bright-colored silks, suggesting a bit of fancy work concealed within. Near these were good, reliable "shopping bags" made of canvas, and of silks and black cloth. The last sold as soon as seen; they were very simple, being about twelve inches long and ten inches wide, lined with bright silks and drawn up with black satin ribbon. A bit of black lace across the front or a sprig of embroidery brightened up the black and made the bag really very pretty as well as practical. The success of our new venture commends the experiment to any who seek for something new for the fair.

Cotton Dress Goods of the Season.

A. C. SAGE.

In the new cotton goods for spring and summer wear, it is observable that the light colors far outnumber the dark; this will be appreciated in midsummer. The novelty of the season in this line, is a soft cotton, without dressing, having a crinkled surface and tiny raised figures. It is called China crape, which it is intended to resemble, and is shown in all the delicate tints of silk crape, either plain, or covered with the small figures so fashionable in Chinese silks. The serviceable Scotch ginghams hold their own, and their beauty is now enhanced by raised dots or blocks scattered over the fabric, embroidered by machinery. Small squares or dice seem to have taken the place of the polka dot, and in very sheer zephyr ginghams, appear in bright colors on a graver cross-barred ground. A very dainty one is a pale buff plaid, broken by lines of white with a raised, square dot of scarlet in the center of each block. Roman stripes in ginghams are also new, several gay colors appearing in one broad stripe on a pure white ground. Blue is also a favorite color.

The cotton satteens are less pronounced in hue and design, and have less gloss than those of former years. Many of them are copies of brocaded silks, having a raised pattern on a ground of solid color, while a few show tapestry designs in imitation of cross-stitch embroidery. Repped cottons are called Siciliennes, and these, together with charming batistes and percales, appear once more in the leading shops. The domestic calicoes, too, at ten cents a yard, are well worth buying, and often wash better than the imported cambrics. They are shown now, in the most exquisite French patterns, on gray, blue, red or buff grounds, and will make beautiful and very useful summer dresses. As to the style of making up, that most easily laundried, is the most desirable. We trust the hideous Mother Hubbard has had its day, and now plain, wash dresses should consist of a simple belted waist and full tucked skirt. Flat trimmings promise to be the coming fashion. Tucks, folds, rows of braid or velvet are more in vogue than ruffles and pleatings, and sashes will be largely worn with all summer costumes. Dressy satteens, that can easily be worn an entire season without becoming soiled, may be made up more elaborate.

Handkerchief Sofa-Pillow, and Work-Bag.

Silk handkerchiefs are now used for fancy work in a variety of ways. The sofa-pillow shown in the engraving is made of one, and it makes a very pretty pillow, with silk pompons on each corner, to match the principal color of the handkerchief. The work-bag is also made of a handkerchief. Turn down the four corners, leaving a space of a few inches between them. Make a hem in them about half an inch wide, and run a narrow ribbon through it to draw it together. Turn the corners, and trim around the top with white lace. This work-bag is particularly nice to carry in a satchel or trunk, as it takes up but little room. Silk handkerchiefs are now sold for the purpose of making into these and other fancy articles. They are offered in a great variety of patterns and colors, some being quite modest, while others are exceedingly gay and flaming in effect.

SOFA-PILLOW.

WORK-BAG.

BOYS & GIRLS' COLUMNS

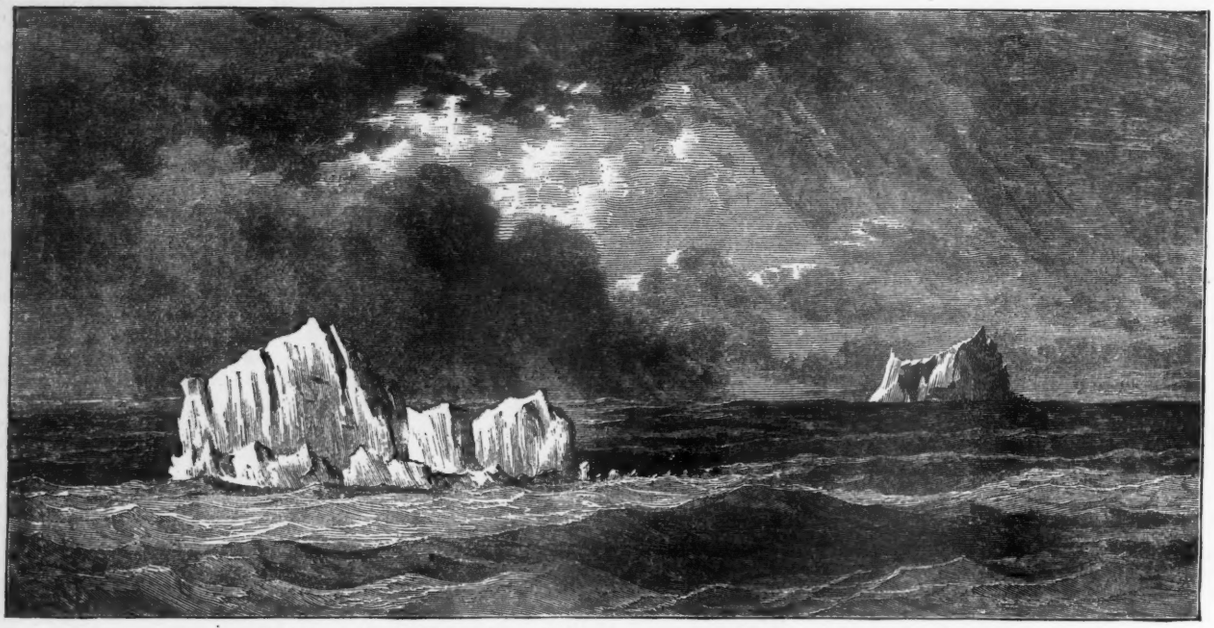
Adventures of a Drop of Water.

R. M. STUART.

I was born a great many years ago—so many that I can hardly tell how old I am; but I was here in the world before the green fields and the trees and the flowers which you see had any existence. I am one of a very numerous family, and have generally lived in company with many of my brothers, but sometimes, too, I have lived alone. We are a very industrious family, never being for a moment idle, and we have lived singly or in company, as the nature of our work for the time might call for. I have been in every part of the world, and have lent a hand in almost everything done in it, so that the history of my life would be almost equal to a history of the world. But I am much better accustomed to doing than telling of things done; and moreover, a full record of my life would occupy not only a volume, but a library; so I shall at present mention only a few of the wonderful things that have happened to me, or in which I have at various times borne a part. One of the first works in which our family was engaged, was moulding the form of this world of ours—its continents and islands, mountain ranges, valleys and the like. In this work we had several powerful allies, chief among which was the sunlight. Indeed, in almost every enterprise in which we engaged, sunlight, as a powerful helper, went with us hand in hand.

This work of land-building occupied us for a long time, and in its performance we had many curious experiences. We had to quarry materials from the solid rocks, over which we flowed, and transport them to other regions. Our first deposits were followed by many successive ones, and as time went on, we were enabled to collect a greater variety of materials than was at first possible—so forming, in conjunction with the other forces before referred to, the different strata which underlie the surface of the earth. In these we left passages which we could traverse at will, and which we constantly revisited in the course of our labors. Many a hill we climbed, and many a wild leap we took into depths that seemed unfathomable, but never once did we alter our purpose or lose our way. We established a perfect system of communication between the most distant parts of the world, and after a time, the part now called land was raised above the ocean (as we were named collectively). Since then the forms of our activity have been greatly multiplied, and the magnitude of our work increased. A story (which I hope you have all read) is told of a prince, who by putting on a little red cap, became invisible, and he had then only to wish himself in any part of the world, to be there immediately. By joining hands with a sunbeam, I have often had the experience of the prince, at least so far as to be invisible. We had only to obey certain laws by which we were governed, to be at any place desired in a very short time. I have floated for days, or even weeks at a time through the air, generally making a visit to the earth at night, when I assumed a visible form and was called dew. On these visits my work was to refresh the tired and thirsty plants with which the earth became covered, and so help them to grow. In the morning I would rise on invisible wings, and floating again through the air, descend to repeat the same work on the return of night. At other times we would descend in a more dense form, and were then called rain. Our work was much the same as the dew, with several added departments. We sank into the soil to the roots of the plants, and carried them food which we had gathered in the air. We penetrated between the particles of soil and opened a way for the roots to follow us in search of other kinds of food which they found in the earth. We gathered in hollows of the rocks, from which we issued as springs, and ever increasing in number as we went, became rivers, and so travelled over the surface of the earth in channels, which we alternately found and formed. Some of these rivers, such as the Mississippi and the Amazon, are very large, and their influence can scarcely be estimated on the countries through which they flow. Others are so small as to be called merely creeks—but all, large or small, are engaged in the beneficent work of watering the earth and fitting it for the dwelling place of men and animals, as well as of vegetable life. In this form too, we have done a great deal of the same kind of work of which I spoke as done by the ocean, viz.: changing the form of the earth by carrying portions of it along with us, and depositing them chiefly at our journey's end, which is always the sea. From this we again rise in an invisible form to repeat our journeys around the world.

But this is not the only transformation I have undergone. By the influence of the sunbeams we were rendered invisible—if they were then in a large measure withdrawn, we were changed into myriads of the most beautiful stars. You have seen them hundreds of times, though perhaps you have never looked closely enough to know how beautiful they were. You call them snowflakes, and next time you see the snow coming down quietly, in large feathery flakes (for it is then that the stars are most perfectly formed), catch a few on a dark woolen cloth and look at them through a magnifying glass; quite a common, cheap one will do. You will see the most beautiful six-rayed stars you can possibly imagine. You will find them in more forms than you are likely to count, but with all the variety, they are all alike in this, that they are six-rayed, and that each little projecting spear on the rays is set at an angle of sixty degrees from its neighbor. Perhaps you may think such beauty was only made to be looked at and admired, but in this form our special work is to keep the earth warm; to robe the flowers and grass and plants of every kind in a warm covering and keep them from the winter's cold. Our special work, I said—for near to us in our form of snowflakes lies yet another transformation, on undergoing which our duties are widely different. We can only become snowflakes by the withdrawal, in a large measure, of the sunbeams, after we have been changed into vapor—in other words, when we meet a current of air cold enough to freeze us. As vapor, we traverse the regions of the air throughout the whole world; as snow, we can fall only in latitudes where the air will congeal us. In warm countries, the air near the earth is always too much heated to do this, but as air is not nearly so good a conductor of heat as the earth, as we mount upward we often find air cold enough to change us into snow. Of course we can only remain on land which is as cold as the air, so in these countries we fall only on the tops of high mountains. There we remain until layer upon layer has fallen, and the weight of the upper ones, with the cold continued or increased, has pressed the crystals in those below into a solid mass, known by the general name of ice, but in this particular form called glaciers. Then, as more weight is added above, the mass begins to move down the mountain; very slow is its progress, but still it moves. After a time it reaches warmer air, and its lower portions begin to melt. We have again become water. Some of us now sink into the soil and nourish a luxuriant growth of plant life; some form springs and streams, and travel on to carry refreshing and beauty wherever we go, never stopping, until as before, we reach our home, the ocean. But though some of the particles composing it have been set free, the glacier still remains. Fresh snow falling on the heights renews the ice as fast as it is melted, and forms an inexhaustible reservoir from which the streams are supplied.



THE DROP OF WATER HELPS TO FORM AN ICEBERG.

Engraved after Hill for the American Agriculturist.

Meanwhile, the glacier moves on, grinding as it goes the rocky sides of the mountain, breaking off portions of the rock and carrying soil, rocks, and stones into the valleys below. The immense size of many of the glaciers, and their no less immense number, rank them among the powerful forces at work altering the surface of the earth. They continue their work until a change of temperature, great enough to overbalance the supply from above, is brought to bear upon them, when their bulk is gradually reduced. I was once part of a glacier, which was formed on a mountain in Wales, and all around us were other glaciers, slowly but surely grinding the mountains and shaping the valleys. Many sunbeams were brought to bear on us and we disappeared, but the result of our work is seen in the rich green meadows and waving harvests that cover the country, and which give no hint of the curious plow that prepared the soil. At another time I floated down from Davis Straits to the Atlantic as an iceberg. We had gathered on the hills in Greenland, and slowly moving, a river of ice, came at last to the shore. The mass behind pushed us on and ever onward, until at last we broke off and floated on the sea. There we found innumerable other icebergs, and we all began moving southward with the current. After a time we dashed against the rocky coast of Labrador, and ground parts of it off; but by the force of the collision, we were ourselves broken into smaller pieces, and again we moved toward the south. Then we met a ship. The people looked at us with great interest; the sun was shining on us, and they said we looked like an island of silver. Gradually, through the influence of the water beneath us, and the sun above, we were dissolved, and I again was part of the ocean. Many of my strangest experiences were gained while engaged as a fellow-worker with man. A mill had been built near the banks of a pond, and our next proceeding was to furnish it with motive power. We were conducted by a narrow channel to great wheels, against which we pressed with all our force. These wheels gave way before us, and turning on a fixed centre set in motion other wheels, which in their turn moved great stones of a peculiar form. Between these stones grain was cast and crushed into small atoms. We learned that a large part of the food used by man was made from these atoms, and that they could be ground only when we were at hand to turn the mill stones. [In a steam mill the water would be no less necessary.] I one day found myself in a circular vessel made of metal. This was placed over a fire, and we were left for a time. Presently it became very hot and we grew uneasy. We began looking about for same way out of our prison, and found an opening in the side of the vessel, in which was inserted a tube. Some of us climbed to the top of this and made our escape, but not before we were changed into steam. The rush to escape was so great that the tube did not let us out fast enough. We found the vessel had a movable lid, and lifting it, got out in that way, letting the lid fall again as each company passed through. A lad was sitting near, his elbow on his knee and his head on his hand, watching us intently. His mother came near to pour the hot water over her tea, at the same time scolding him soundly for his idleness. "You will sit," she said, "and do nothing but stare at the steam, instead of employing your time usefully." She little knew what visions were floating in his mind, suggested by our raising the lid, visions of us harnessed to great undertakings and driven for the benefit of man. Years passed, and the boy grew to manhood, but he did not forget his dreams. They came back again and again, until at last he was able to turn them into a reality. They had visited others before, and efforts, partially successful, had been made to realize them, but for him was reserved the actual accomplishment of the work. We were captives at his will. Since that time we have transformed the world scarcely less as the servants of man than we had done before he subdued us. We have drawn the plow in the spring-time, and threshed the harvest after it grew. We have spun the threads of the silk-worm, and the cotton, and woven them into webs. We have fashioned the main-spring of a watch, and wielded hammers that crushed the rocks to fragments. We have driven the steamships against wind and waves, and the locomotive that carries enormous burdens, as if they were feathers. There is scarcely a department of human activity in which we are not engaged in some active and useful manner, and when this story of my adventures comes to you it will be as the result of my labor in printing the beautiful page before you.

The Doctor's Talks.

THE BOYS' AND GIRLS' CORNFIELD.

That the youngsters might have some stalks of corn to do with as they pleased, I suggested that

THE INDIAN CORN PLANT.

they ask the use of a bit of land, where they could plant a few hills of corn of their own. If any failed to plant some expressly for themselves, that they might watch it, they can just as well look after and observe the corn in the fields, and see what that is doing. If any of you planted some pop-corn, that you might prepare for the fun of popping it in the evenings of the coming winter, you must not neglect it. The seed, or kernel, of the pop-corn is very small, and the young plant, when it first appears above ground, is much smaller than that of the large field-corn. In hoeing your pop-corn, be careful that you do not mistake the tender little seedling for some kind of grass, and cut it up. If the pop-corn was sown in rows, or drills, you may be in danger of allowing the plants to stand too thickly. You need not be afraid to thin the plants. You must thin them so that they will not stand closer than eight inches, and I have no doubt you will have a better crop if none of the plants are nearer than a foot from those on each side of it.

WEEDING THE CORN.

If you have three shoots, or young plants, of pop-corn growing where you wish but one, the other two are weeds, as much so as if they were thistles or pig-weeds. A weed is a plant that grows where it is not wanted, and steals the food intended for the crop. If the plant that is not wanted is a corn-plant, it is not the less a weed. This is true, not only of corn, but of all other cultivated plants.

WHAT IS THE CORN DOING?

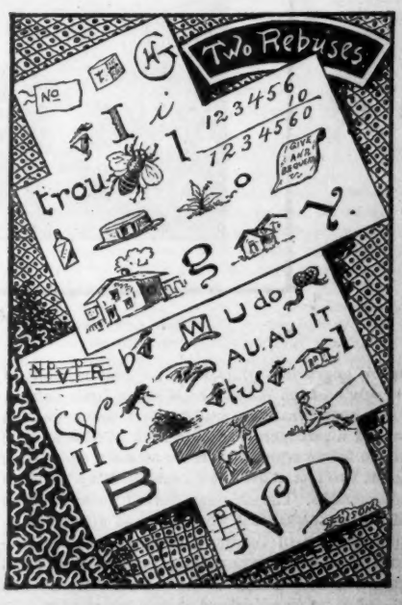
You will recollect that, last month, I tried to show you that the young corn-plant, the little green spear that first appears above ground, is only an enlarged portion of the embryo that was inside of the seed, or kernel of corn, that was planted. Now, if you watch the growth of the corn-plant after it is up, you will see that it increases in size; it grows taller by pushing a new portion of stem from the top of the older portion. It will keep on, adding story to story, as it were, successive stems and leaves, until at length it will stop. As only those who live in the Southern States can see the whole corn-plant, I give an engraving to show how the corn will look when it stops growing upwards. You will see that the plant is made up of a stem, bearing leaves. You will observe that a short distance above the surface, there is a kind of swelling marked by a ring, and above this, a short distance, is another ring, and so on. You will notice that the whole length of the stem is made up of these, repeated again and again. Now I must ask you, to remember that these places in the stem where the rings are, are called joints, or *nodes*, and that the space between two nodes is called an *internode*. After the stem reaches the proper hight, different for each variety, this arrangement stops, and at the very top is produced, what is popularly called a "tassel." What this tassel is, and what use it is to the corn plant, we shall see later; just now, we will look more closely to the leaves.

LEAVES ARE NOT ALL ALIKE.

The leaves of the corn plant are attached, one at each node. You will see that they are unlike the leaves of most other large plants. Compare the corn leaves with those of the sunflower, for example. The sunflower leaves are broad, and somewhat heart-shaped, with three strong ribs running from the bottom towards the point of the leaf, with many smaller ribs, or veins, as they are called, between. The leaves, one at each node, have each a narrow, more or less rounded, leaf-stalk. We may as well learn here, that the stalk by which the leaf is attached to the stem, is called the *petiole*, while the broad, flat part—the leaf proper—is the *blade*. See how different are the leaves of the corn plant.

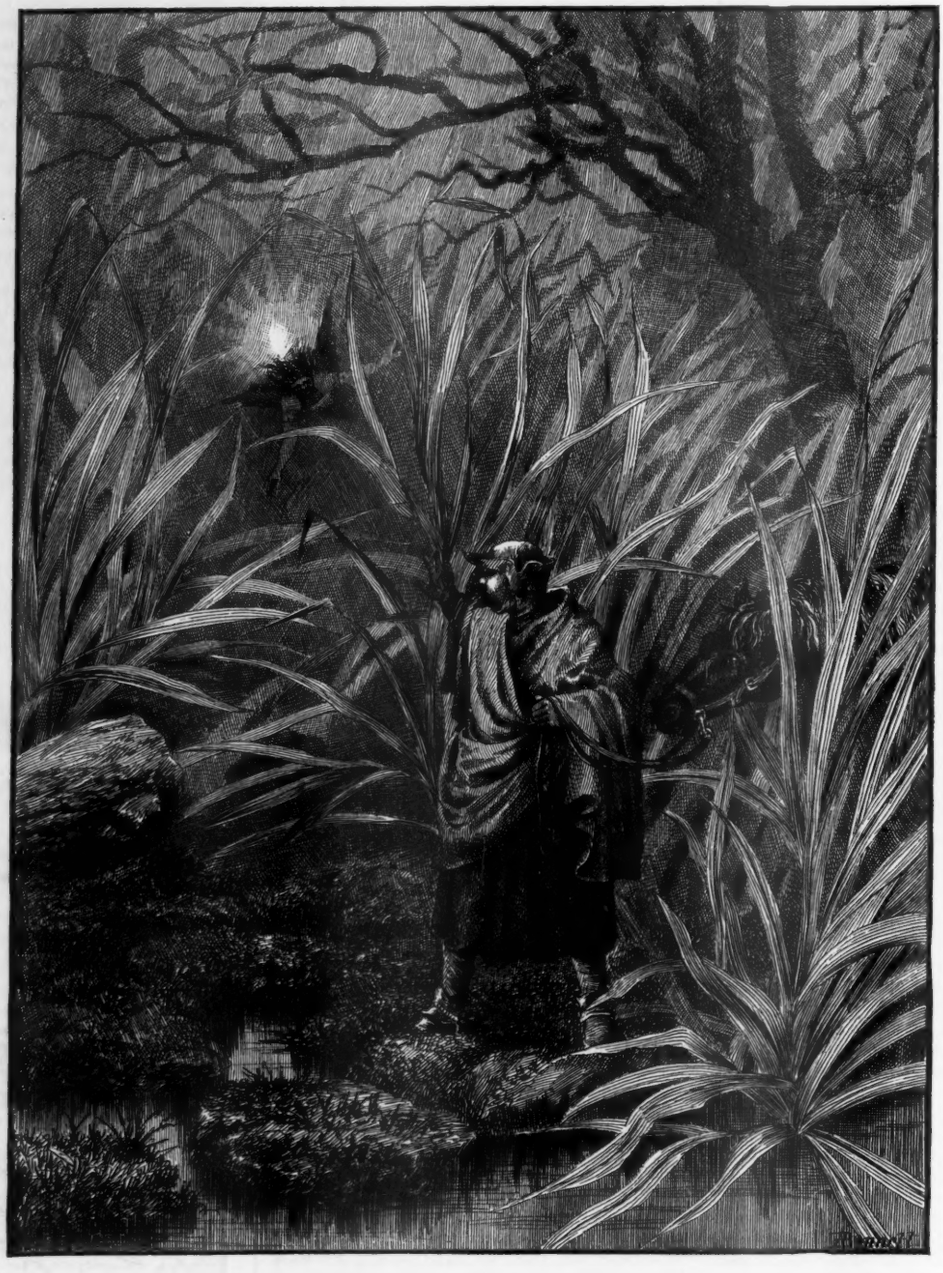
THE LEAVES OF THE INDIAN CORN.

They are not broad and heart-shaped, but long and narrow; instead of the ribs or veins running in all directions, and forming a net-work, as in the sunflower, the veins all start from the bottom of the leaf, and run through its whole length without branching or forming a net-work. You may at first suppose that the corn leaf has no petiole, but pull one off, and you will see that the petiole is as wide as the leaf, and thin, like that. Moreover, it is wrapped closely around the stem of the corn plant, forming what in leaves of this kind, is called a *sheath*.



The Will-o'-the-Wisp, or Ignis Fatuus.

The dancing lights which have many times deceived travellers passing near marshy places, have been the foundation of many a legend in olden times, and we are almost tempted to repeat some of them. But we leave our artist to suggest a legend by his engraving, while we give some account of the origin of the Will-o'-the-Wisp, or Ignis Fatuus.



"MANY A TRAVELLER I'VE DECEIVED."

Drawn and Engraved for the American Agriculturist.

For many years naturalists were much puzzled to find a satisfactory explanation of the strange bluish flames which hovered, now here, now there, about two feet above the ground, in damp lowlands and marshes. The strangest part of the appearance of the light was, that when any one attempted to approach one of the wavy tongues of flame, it invariably moved away or disappeared altogether and quite baffled investigation. At last a naturalist in Germany was successful in locating the light at several different places. On a wet, marshy spot, he at night observed a bluish-purple flame, where bubbles of air issued through the water during the day. These flames retired as he approached, because the air was agitated by his movements. When he stood perfectly still, they again appeared within his reach, and he succeeded in singeing a bit of paper, which afterwards took fire. By disturbing the air over the spot, he caused the flames to disappear entirely, but in a few minutes when all was again quiet, they reappeared. The conclusion was, that the ignis fatuus is caused by the inflammable gas which arises from the marsh, and that the flames exist by day as well as by night, though not then visible. The lights seen occasionally over graveyards, are supposed to have the same origin. The gas is probably formed by the decay of vegetable or animal substances. A gas is well known to chemists which takes fire when it comes in contact with the air, and it is supposed, with good reason, that the gas which produces the will-o'-the-wisp is of this same character. The motion of the ignis fatuus has been accounted for by the flame being communicated along the line of a stream of gas. Sometimes fireflies are mistaken for these flames, as they appear in similar places.

Many names have, from time to time, been given to this deceptive appearance. Among them are: Will-o'-the-wisp, Jack-o'-lantern, and Spunkie. There is no doubt that travellers have sometimes mistaken the ignis fatuus for a lamp, and have been thus decoyed into marshy places where they have perished. The real meaning of the name Ignis Fatuus is found in the two Latin words *fatuus*, vain or foolish, and *ignis*, fire. So it means vain fire.

The New York Bench Show—Rare Dogs.

The dog show, which closed at Madison Square Garden, New York City, on last May-day, was in all respects a success. The dogs were present in larger numbers than ever before, while the general character of the exhibits in the various classes, was greatly in advance of former shows. The attendance was not only large, but highly respectable in character, showing that the love of dogs is not confined to what are called "sporting men," but is shared by the refined and educated as well. The comfort of the visitors was enhanced by the improved ventilation of the "garden." Usually the atmosphere of a building where a large number of animals, especially dogs, are brought together, is exceedingly unpleasant. In some former shows this has been so marked as to detract greatly from the pleasure of the visitors. So successful was the ventilation, however, at the exhibition just closed, that all cause of complaint was removed. A marked feature of this show was the number of trained dogs, and the thoroughness of their education. The various trials of these were watched with great interest. It is not generally known that the business of training dogs is a regular occupation, and gives employment to a number of persons. The dog-trainer's calling is far from being a useless one. If we are to have dogs, it is desirable to have good ones. There is as much difference between an ignorant, uneducated dog, and one properly trained, as between a wild, unbroken horse, and one that has been taught to be "kind in harness." The trainer's skill greatly increases the value of a dog to its owner, and converts a useless animal, which may be a nuisance, into a useful servant and faithful companion. Of course, the owner may train his dog himself, but there are many who, rather than devote the needed time to it, prefer to engage the services of a regular trainer. The origin of the various breeds of dogs is a point upon which naturalists are not agreed. Some claim that they descended from the wolf; others regard the jackal as the original. The general opinion is, that our domestic dogs descended from several distinct wild species, and that these have been modified by the influences to which they have been subjected in domestication. The subject is surrounded by difficulties, as it is almost certain that man had domesticated the dog before historical times, as in the pre-historic burial places in Denmark, the bones of dogs are found in the same graves with human bones. Then, many savage tribes have dogs in a half domesticated state. The Arctic Esquimaux, and the Araucanos of Chili, with many intermediate tribes, have their peculiar dogs, and the same is true of the tribes of the Eastern Hemisphere.

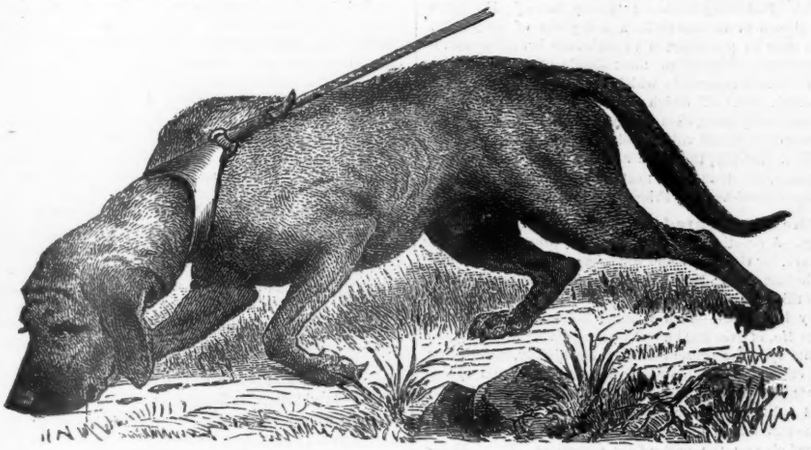


Fig. 1.—THE BLOODHOUND.

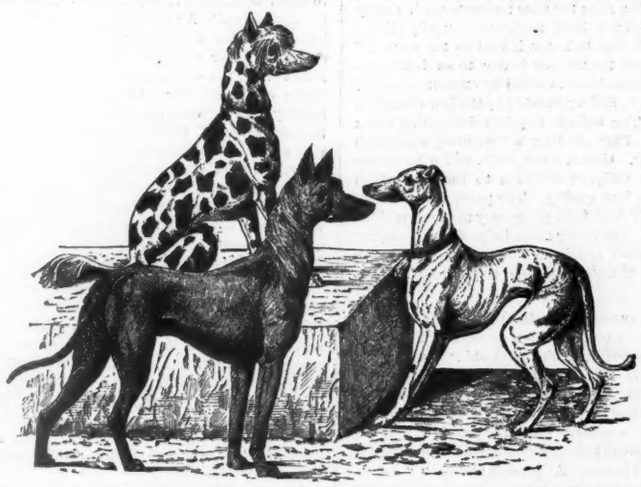


Fig. 2.—HAIRLESS DOGS.—THE EGYPTIAN AND SOUTH AMERICAN, AND THE NAKED GREYHOUND.

Whatever may have been the origin of our breeds of dogs, the modifications that have been produced by breeding for particular purposes, are well marked, and interesting. Indeed, such a show as that recently held, is attractive not only to those who admire dogs for their beauty and their uses, but it also affords subjects of study and comparison to the thoughtful naturalist. The most indifferent can not fail to admire the wonderful adaptation of the different breeds to the uses for which they are kept. We give here engravings of some of the marked breeds exhibited, that have not already been given in "Our Gallery of Dogs." Among the most striking, and least lovable breeds is

The Bloodhound (fig. 1), so called for its remarkable power of scenting the blood of a wounded animal. If set upon the trail of a deer, for example, that has been merely wounded, this hound will follow it and single it out, if the animal mingles with a large herd. This acuteness of scent is not exercised upon blood alone, as the dog is able to trace human beings, and is employed to follow escaped prisoners, and especially in England, to aid in the arrest of sheep-stealers, and other rural depredators. The bloodhound is somewhat smaller than the deerhound, and of a very strong build. The head is long, with a peculiarly narrow forehead; the ears are hanging, and eight to even ten inches long; the lips are loose and hanging. The animal has a sullen expression, due to the deep wrinkles upon the forehead. The legs and feet are straight, with strong, muscular thighs; the tail smooth, tapering and strong. The color of the bloodhound is dark red, or deep, reddish fawn color. No white is admissible, save upon the tip of the stern. The disposition of this dog is regarded as vicious, but it is susceptible to kindness; yet while capable of forming strong attachments, its temper must always be regarded as uncertain. The training of the bloodhound for hunting is entirely different from that of other hunting dogs, and requires great painstaking and patience on the part of the trainer.

Hairless Dogs (fig. 2). Under this class Bungartz embraces the South American Dog, the Naked Deerhound, and the Egyptian Dog. There are hairless dogs in Turkey, and when Europeans first visited Paraguay and Peru, they found that the natives had a naked dog in domestication. In Mexico a hairless dog, known as "Alco," is very common. These dogs are quite black, and being entirely without hair, warrant the epithet, applied by Americans in the country, who call them "cast-iron dogs." Nothing in the way of a domestic animal can be more repulsive than these hairless dogs. The Mexicans are fond of them in more senses than one, as they are often eaten! These dogs are very sensitive to temperature, and can not live in the colder climates.

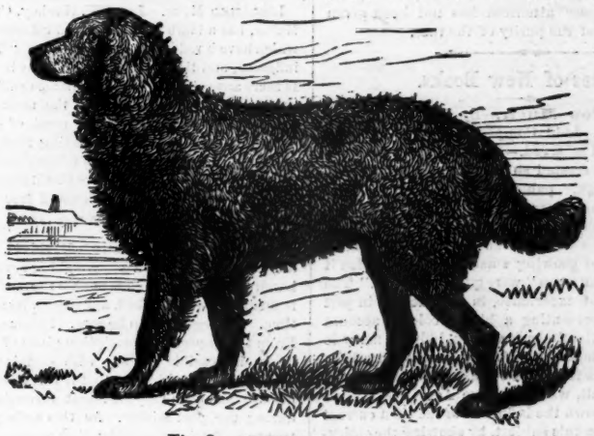


Fig. 3.—CHESAPEAKE BAY DOG.

The Chesapeake Bay Dog is just now very popular, not only for wild-fowl shooting, but as a house dog and companion. The engraving (figure 3), is a perfect picture of Trip, owned on the eastern shore of Maryland, or of Julia, reared on the farm of the *American Agriculturist*, in Orange County, and of very pure blood. We have raised several litters of them, and we must say that for duck shooting, or any other kind of shooting where retrieving from the water is necessary, the dog surpasses any other breeds we know of. They are like the Newfoundland, very affectionate, but they have neither the jealous nor the treacherous disposition of the Newfoundland. For this reason the Chesapeake is far more desirable as a home dog, and a companion for adults, or for children. The Chesapeake Bay first appeared in this country about 1807, when, says the author of "The Dogs of Great Britain and America," the ship Canton, of Baltimore, fell in at sea with an English brig, rescuing the crew and two dogs. One of these dogs (of the Newfoundland breed), was taken to the eastern shore of Maryland. From her came the Chesapeake breed, of which there now appears to be three types. The present admirable May number of the Century Magazine, in a pleasant article on dogs, says, regarding the Chesapeake:

The ability of this dog to withstand cold and exposure was far beyond that of the Irish retriever. Within a brief period he entirely superseded the last-named

animal as a water-dog. For some unknown reason the Chesapeake duck-dog never became numerous; hence the owner of a pure-blooded specimen could hardly be induced to part with him at any price. In time this dog so identified himself with the waters of Chesapeake Bay as to be known by no other name than that borne by this estuary. Twenty-five years ago he was at the apogee of his fame. Nearly every family living in the bay counties of Maryland owned one or more of untainted blood. Through carelessness the breed was allowed to deteriorate; in consequence, to-day few, if any, of pure blood are in existence. A small number, however, remain of sufficient purity of race and perfection of training to almost equal in efficiency their distinguished and untainted ancestors. * * * The Chesapeake duck-dog is used by sportsmen who shoot wild fowl either from points or from "booby blinds" set in the water a short distance from the shore. This dog so closely resembles the color of sedge-grass as not to be distinguishable except very near by. He remains in concealment until ordered to "fetch." At the command he springs into the water, breaking his way even through ice of considerable thickness. The wounded birds he first retrieves. When these are all gathered in, he secures the dead. Ducks in the Maryland waters generally fly in long strings. It often happens that the gunner, armed with a breech-loader, puts in several shots while the gang of birds is passing. In this case the well-trained and sagacious dog has much hard work to do, particularly if the weather be rough. His endurance, however, is remarkable, and he never seems to tire at his task. This continuous immersion in the water would be impossible to any animal not provided with the thick and almost water-proof under fur of the Chesapeake duck-dog. With his affectionate disposition, great intelligence, strength, and the peculiar physical qualities which he possesses, adapting him to the retrieving of wild fowl beyond any other known breed, it is a great misfortune that closer attention has not been given to the preservation of the purity of the race.

Notices of New Books.

Five Acres Too Much.—By Robert Barnwell Roosevelt: the O. Judd Company, New York; new edition, revised and enlarged.—Probably no work upon rural matters ever created so great a sensation as did "Ten Acres Enough," published some twenty years ago. It set forth the pleasures and the profits to be derived from cultivating ten acres, telling a very fascinating story of a book-keeper who found health and a handsome income by growing small fruits, for which it was shown that "ten acres" were quite "enough." The work was a record of experience, in part actual, in part assumed, and by presenting a highly colored account of the profits of cultivating a few acres, induced many to undertake the life depicted. The success of the work induced several others to write on similar subjects, among them Mr. Roosevelt, who in "Five Acres Too Much" did much to tone down the influence of the then current style of literature on this subject, by showing the ridiculous mistakes that may be made by city people who, without any previous experience, change their mode of life by moving into the country. This work gives the adventures of a city man who takes possession of his five acres. That the work has real merit is shown by its having lived long after the craze upon which it was intended as a satire, had passed away. It is a most thoroughly funny book; one that any person with a sense of the ludicrous can not fail to enjoy, even if he has no knowledge of the "Ten Acres Enough" excitement. The author, for the present edition, has prepared a new introduction, and has added a new chapter: "Three Hundred Acres Not Enough." One must be sorely afflicted with the blues to whom a perusal of "Five Acres Too Much" will not bring many a hearty laugh. Price, post-paid, $1.50.

Homes and Rural Buildings.—The Publishers of the *American Agriculturist* have in preparation, for immediate issue, another of the very attractive series of their Rural Architectural Books, edited and arranged by Mr. D. W. King, Architect, of New York. This neat work is very fully and clearly illustrated, and contains a series of Farm and Village House Plans in various styles, generally of houses which have been built, and have been proved by actual use convenient and adapted to the needs of their occupants. In each case the cost of the house is given as accurately as possible, and the plans range in expense from villas costing several thousand dollars, to cottages of great simplicity, one even which may be built for not more than one hundred dollars. Several of the plans and specifications are especially full in the matter of convenient arrangements to save labor and care to the mistress of the house. Others are adapted to families who can have the luxuries of servants, music, etc.

Then there is an admirable series of Barn Plans, or what the English call "steadings," illustrated with every detail of the subdivisions of the various floors, the framing, the stalls, the drainage, ventilation, etc. These structures vary in character from those adapted to farms of several hundred acres, to village stables, and barns for small farms of the most primitive character, and are many of them picturesque, as well as convenient and useful. Following these are "Sheep Barns." Piggeries are shown of various styles and degrees of simplicity, from such as are adapted to elaborate breeding establishments, to those of the most simple character. Then come Poultry Houses, in which the same general plan is followed, some of which are elegant and picturesque, others simply good, cheap, convenient, and adapted to all classes of rural and village residents, and to all classes of poultry. Finally, there are added for the convenience of many, the plan of a neat country Church, and of a village School-house. Price, post-paid, $1.50.

The Illustrated Dictionary of Gardening.—A Practical and Scientific Encyclopædia of Horticulture, for Gardeners and Botanists. Edited by George Nicholson, of the Royal Botanic Garden, Kew. Volume I, of this magnificent and useful work, has had a surprisingly large sale. This volume, including A to E, is a large 4to, of over five hundred pages, giving all cultivated plants up to the present time, their history, description and culture, and illustrated by a great profusion of engravings. It is an indispensable work to every intelligent cultivator of, or dealer in plants, seeds, etc., and bears throughout marks of thoroughness and competent knowledge on the part of its compilers. Price, $5 per volume. The Publishers of the *American Agriculturist* now have Volume I ready.

Animal Ailments.

INFLAMED EYES.—Jonn W. Hughey, Cumberland Co., Maine, has a lamb with supposed cataracts on her eyes, which have a reddish look like sores. "The eye-lids are inflamed, and the eyes run water. She is otherwise well. Is there any remedy?" The animal is suffering from conjunctivitis, or inflammation of the membrane covering the eye-ball and lids. It is the result of cold, and probably of exposure. Give nourishing food, and bathe the eyes twice a day with a lotion of half an ounce of borax to a quart of water, taking care that it shall enter between the lids. Keep the parts clean and free from irritating substances, such as dust, hay-seed, etc.

A PIG UNABLE TO STAND.—David H. Sheldon, Niagara Co., N. Y., has "a pig weighing seventy-five to one hundred pounds, which is unable to stand, and at present is unable to walk or feed, and lies on its side most of the time. His legs seem to be sore. Please give me advice." From the imperfect description given of the symptoms, it is impossible to say with certainty what is the disease, but should judge that it was swine plague. The disease has been very prevalent throughout the country during the past winter. As this malady is almost certain to be fatal, notwithstanding treatment, it is best not to undertake it, but to kill and to bury the carcase deep, beyond the reach of dogs.

NASAL DISCHARGE IN CALF.—S. E. Valentine has a calf that eats well, but gets poorer all the time. There is a green stuff coming from the nose; sometimes it nearly smothers it. "I have been feeding hay nearly all the winter, and would like to know if that is the cause?" The discharge from the nostrils is due to an inflammation of the lining membrane, caused by exposure to cold, and possibly to wet, and aggravated by the low condition of the system. The animal requires better diet and a change of food. Place it in a warm, sunny spot, with good, dry bedding. Give it a few roots, and a moderate quantity of grain daily, in addition to the hay, which should be of the best quality. The parings and debris from the table, if free from all greasy matters, will be greatly relished. Add to the grain twice daily, one-quarter ounce powdered gentian. Turn out the calf to the first green grass, and do everything to promote the general health.

SUSPECTED GLANDERS.—W. H. Riley, Cedar Co., Mo., has a mare six years old, of which he says: "For about two years she has been troubled with enlargement of the glands underneath the jaws, and with a discharge from both nostrils of a whitish colored matter. The discharge has no bad odor, and in quantity is not usually more than enough to keep the nostrils constantly moist. The discharge is less copious than it was some months ago, and the general health better. At present she has a good appetite, and except the above disease, seems in good health. What treatment is desirable, and is there any danger of the above running into glanders?" However desirable it may be to detect the presence of glanders in its early stages, this is not an easy matter, especially where the slight discharge continues, as is sometimes the case, for an indefinite time. The appearance of the lining membrane of the nasal passages, affords the surest means of determining this point. In the non-contagious, simple nasal catarrh, the membrane is reddened, whereas in glanders, it generally assumes a dull, leaden hue. The discharge of glanders is most frequently sticky, even though clear, and when unmixed with purulent matter. The flow is also persistent and continues without intermission, and without odor. It has been considered, as a general rule, that only one nostril is affected in this disease, but this can not be depended upon as a sign. The presence of enlarged glands below the jaw, especially if hard and attached to the bone, is suspicious. During the continuance of this thin, and apparently insignificant discharge, the animal may continue in apparent good health, and able to work. The increase of the discharge, which becomes opaque and purulent, the presence of ulcerations upon the lining membrane of the nostrils, the failure of the appetite, loss of flesh and spirits, and other constitutional symptoms, sooner or later determine the character of this frightful malady, for which death is the only sure relief. In the present case, the diagnosis must depend upon the condition of the membrane of the nostrils. The discharge has been persistent, and without odor, and the glands under the jaws have been well marked. Suspicious as these symptoms are, the discharge is reported as less than it was months ago, and the general health better, so that we may hope that the disease is a chronic inflammation of the mucous membrane, the sequel of a catarrhal attack. The treatment of this would be good food, well ventilated stable, freedom from exposure to wet and cold draughts, good nursing, and the occasional injection into the nostril of the following lotion: Sulphate of zinc, half an ounce to a quart of tepid water. Watch the condition of the discharge, and state of nostrils. If ulcerations occur, and constitutional symptoms appear, destroy the animal at once by the bullet.

PARTURIENT FEVER.—J. M. Hanna, Jones Co., Texas, has a cow with a calf six days old. "The placenta did not come away for three or four days. Matter is now constantly passing of an offensive nature. She can not get up, but she eats tolerably well." Retention of the after-birth may occur for two or three days without injury to the animal, and when attempts are made to remove it, it should be done effectually, leaving nothing which may decompose and become offensive. This animal is suffering from parturient fever, which acts upon the nervous system; hence the inability to rise. If the bowels are constipated, give a purgative, of Epsom salts. Rub the limbs thoroughly and frequently, and draw off the milk regularly. Rub the spine with strong mustard water, and apply mustard poultices to this part. Give nourishing broths and ale frequently, until the strength of the cow is improved. If the offensive discharge continues, wash out, and inject into the vagina, twice a day, a lotion composed of a drachm of carbolic acid, to a pint of water. Get the animal upon its feet as early as possible.

The Lawson Cypress; Its Hardiness.—In our description of the Lawson Cypress last month, we said, writing from our own experience, that it had proved perfectly hardy in the neighborhood of New York, adding, "How far north of this it can be planted with safety we are unable to say, but it is worth while to experiment with it wherever the winters are not unusually severe." A subscriber in Jersey City wishes to know if the tree will be hardy when reared on the Hudson River. Our own trees, planted in Bergen County, New Jersey, ten miles from New York, in 1870, on the banks of the Passaic River, have made a strong and healthy growth, while they have no protection whatever; though some of the intervening winters have been very severe, not a shoot or twig of the trees have been injured in the slightest. Reiterating what we said last month, we cannot speak for the regions north of this, but we recommend our subscribers to try an experiment with these beautiful trees where the winters are not unusually severe.

Bogus Butter in Pennsylvania.—Pennsylvania is a State that has long been famous for the high excellence of its butter, and we are glad to observe that some of its farmers are moving against the manufacture of oleomargarine and other forms of grease, to be sold instead of butter. At the May monthly meeting of the Berks County Agricultural Society, the following resolution was offered:

"RESOLVED, That it is the sense of this meeting that the legislature of Pennsylvania should pass a law prohibiting the manufacture of imitation butter."

After a very free discussion, in which the makers and sellers of bogus butter were told some very homely truths, the resolution was passed unanimously. Let farmers in all parts of the country speak out in a similar manner. They owe it to themselves, and to all consumers of butter, whether in city or in country.

See Public Sale of High Grade Fertilizers, on page 265. The Excelsior Fertilizer Co., of Alliance, O., make excellent fertilizers. Send Postal Card for information.

$13.50 will buy a full nickel hand-made Harness Best in the U. S. for the money. Send to **KING & CO., Owego, N. Y.,** for new catalogue.

THE ACCURATE WATCH, $10.

See page 219, May number.
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The *American Agriculturist* of April, 1885, says:

"Rarely does the *American Agriculturist* editorially allude to the virtues of the various articles advertised from time to time in its pages. The fact of this or that thing being admitted to our columns we desire to be regarded as prima-facie evidence that it is good. We however take great pleasure in recommending our readers to buy the Asbestos liquid paints, because we have from year to year thoroughly tested them and found them to be all and more than all they are recommended to be. The Asbestos liquid paints are made from the best and purest materials, combined on different principles from any other liquid or mixed paints. The best linseed oil and the best pigments are employed in their manufacture. The H. W. Johns Manufacturing Co., who manufacture Asbestos Roofing, etc., have branch houses in Philadelphia, Chicago and London."

When sending for **"Structural Decoration,"** please mention the *American Agriculturist.*

Genuine Asbestos Roofing, Asbestos Steam Pipe and Boiler Coverings, Piston Rod and Wick Packing, Mill-Board, Building Felt, Fire-Proof Paints, Plastic Stove-Lining, Cements, Coatings, &c.

Send for Full Descriptive Catalogue, Samples, etc., etc.

H. W. JOHNS Manufacturing Company,
SOLE MANUFACTURERS,
87 MAIDEN LANE, NEW YORK.
175 Randolph St., Chicago; 170 North 4th St., Philadelphia; Billiter House, London.

SUMMARY OF
Fortieth Annual Report
OF THE
New-York Life
INSURANCE COMPANY.

BUSINESS OF 1884.

REVENUE ACCOUNT.

Premium Receipts	$11,968,850.76
Interest Receipts	2,971,624.63
Total Income	**$14,240,475.39**

DISBURSEMENT ACCOUNT.

Paid Death-claims	$2,257,175.79
" Endowments	873,808.50
" Annuities, Dividends, and Surrender values	3,603,970.85
Total Paid Policy-holders	**$6,734,955.14**
New Policies issued	17,463
New Insurance written	$61,484,550

CONDITION JAN. 1, 1885.

Cash Assets	**$59,283,753.57**
Surplus, (Company's Standard)	**$4,371,014.90**
Surplus by State Standard (estimated)	$10,000,000
Policies in Force	78,047
Insurance in Force	$229,383,586
Increase in Assets, 1884	**$3,740,850.85**

Death-claims paid		Income from Interest	
1880,	$1,731,721.	1880,	$2,317,889.
1881,	2,013,205.	1881,	2,433,654.
1882,	1,955,292.	1882,	2,798,0 8.
1883,	2,363,092.	1883,	2,712,983.
1884,	2,257,175.	1884,	2,971,624.

Cash Assets.	Amount at risk.
Jan. 1, 1881, $43,183,935.	Jan. 1, 1881, $135,726,916.
Jan. 1, 1882, 47,228,781.	Jan. 1, 1882, 151,760,824.
Jan. 1, 1883, 50,800,306.	Jan. 1, 1883, 171,415,097.
Jan. 1, 1884, 55,542,902.	Jan. 1, 1884, 196,746,043.
Jan. 1, 1885, 59,283,753.	Jan. 1, 1885, 229,382,586.

The Latest Advance in Life Insurance
IS THE
Non-Forfeiting Limited-Tontine Policy
OF THE
New-York Life Insurance Co.

A Policy combining the Non-forfeiture features, originated by the NEW-YORK LIFE in 1860, with the Privileges and Profits of its popular "Tontine Investment Policy."

IT FURNISHES—

1. Term Insurance at low rates, with surplus accumulations at compound interest.

2. The privilege of continuing your insurance at original rates after your Tontine Period expires.

3. The entire Cash Value of your Policy in Ten, Fifteen, or Twenty years, on the basis of full legal reserve.

4. A grace of one month in payment of premiums, during which time your indemnity will be unimpaired.

5. Protection against loss, in case of default in payment of premium after three years, by the guarantee of a paid-up policy—as upon ordinary policies.

MORRIS FRANKLIN, President.
WILLIAM H. BEERS, Vice-President & Actuary.
HENRY TUCK, 2d Vice-President.
THEODORE M. BANTA, Cashier.
D. O'DELL, Superintendent of Agencies.
HENRY TUCK, M. D., A. HUNTINGTON, M. D., } **Medical Directors.**
H. A. APPELIUS, Sup't of Metropolitan District.
PRINCIPAL OFFICE IN GERMANY, 18 Charlotten Strasse, Berlin.
PRINCIPAL OFFICE IN FRANCE, 16 Boulevard des Italiens, Coin de la Rue Le Peletier, Paris.

"Red Tin Tag" Binder Twine

For SELF-BINDING HARVESTER MACHINES.
Made by L. WATERBURY & CO., Offices, 139 & 141 Front St., New York.
ALSO, LARGEST PRODUCERS OF CORDAGE AND BAGGING — MANILA PAPER.
Annual Product, Forty-six Million Pounds (46,000,000 lbs.).
See page 218, May number of American Agriculturist, Article: "The Use of Twine for Binding Grain."

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Is a new work on Farming, of 400 pages, written by William Crozier and Peter Henderson, two of the best known practical Farmers and Gardeners on this continent. The book is mailed for $2.50. Table of Contents and Terms to Agents sent free. Our Agents are making from $5 to $10 per day selling this book.

PETER HENDERSON & CO.,
35 & 37 Cortlandt St., New York.

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The largest and best assortment of the above, of the standard, as also of the most recently improved styles. Manufactured and for sale by the

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P. O. Box 375. 189 & 191 Water Street, New York City.
Send for Our New Seed Catalogue, Now Ready.

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BEAUTIFUL EVER-BLOOMING

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OTHER VARIETIES 2, 3, & 10 FOR $1

according to value. Send for our **New Guide,** 76 pp elegantly illus. and choose from over **500** finest sorts
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Rose Growers, **West Grove, Chester Co., Pa.**

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With a Colored Plate.

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The rich collection of fine Foliage, and other Greenhouse and Hothouse Plants, are well grown and at low prices.
Free to all my customers; to others, 10 cts; or a plain copy gratis.
Catalogue of Seeds, Roses, Orchids, Fruits, etc., gratis.
JOHN SAUL, Washington, D. C.

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and **GRAPE VINES,** strictly pure and first-class, at reasonable prices. All the leading new and standard varieties. **See my $5.00 List of Plants for Country Homes.** Illustrated Descriptive Catalogue free. Address

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Cornwall-on-Hudson, N. Y. E. P. ROE.

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By mail, 75 cts. per 100; or [illegible] per 1,000 by express. Big reduction on large lots. Guarantee safe arrival.
G. BOCHOVE & BRO., Kalamazoo, Mich.

LATE CABBAGE, grown from "Puget Sound" seed, in lots of 10,000 at $12. For larger or small lots, write for terms. Also **CRANBERRY PLANTS.**
I. & J. L. LEONARD, Iona, New Jersey.

5 CENTS EACH FOR BEDDING PLANTS, ROSES very low. Send for Catalogue.
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AGENTS WANTED. Salary Paid, Steady Work, Outfit Free.
JAMES E. WHITNEY, Nurseryman, Rochester, N. Y.

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DEALER IN FORKS, ROPE, PULLEYS, HOOKS, &C.
Send for Circulars. **MILLBROOK, N. Y.**

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STUMP PULLER

Received Centennial Medal.

Is now in use in Canada and nearly every part of the U. S.

LIFTS 20 to 50 TONS.

Stands on runners, worked by two men. **5 Sizes.** Prices **$35 to $70.** Circulars free. Manufactured by **H. L. BENNETT,** Westerville, Franklin Co. Ohio

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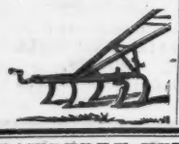
Six of them were saved by the use of three of **LEWIS'S COMBINATION FORCE PUMPS,** which happened to be in the immediate vicinity. For a description of said fire, and the saving of many other buildings by the use of the above pump, send for my illustrated catalogue. I have agents all over the U. S. who are making $10 to $25 per day selling these pumps. I give their name and address in catalogue. *To introduce it I will send a sample pump, express paid, to any express station in the U. S. for* $5.50. The pump has attachments for making three complete and distinct machines, made of brass, will throw a good stream of water 50 to 60 ft., and retails for only $6. Agents wanted everywhere. Send at once for price-list and terms. Every house should be provided with one of these pumps. Address
P. C. LEWIS, Catskill, N. Y.



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As lately introduced, has no equal in the world. Its excellent work in the field has distanced that of all competitors. It is, in some sections, doing in one passage, the work of four or five old-style implements, and in others superceding the cumbersome and expensive two-horse tools. The **"PLANET JR" HAND SEED-DRILLS AND WHEEL HOES** are the newest and best, lightest and strongest known. There are 7 distinct tools, each with special merits, no two alike or the same price; all practical and labor-saving. Let no Farmer or Gardener fail to study up during the winter evenings our **1885 CATALOGUE,** which gives reduced prices, careful and exact engravings of these different machines, and such descriptions as will enable the reader to judge correctly of their merits. Thirty pages and Forty engravings. Free to all. Correspondence solicited.
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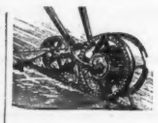
S. L. ALLEN & CO., CATHARINE ST., PHILADELPHIA, PA.



STRAWBERRY HULLER. By mail, 8 cents each; 4 for 25 cts,
A. S. BUNKER, Lawrence, Mass.

THE WEEDS MUST GO,

SAYS THE

WEED SLAYER.

PRICE **$2.00**

Kills weeds dead. Equal to five hoes in garden or field.—*Battle Creek Times.*

It will pay for itself every day.—*Rural New Yorker.*

Sold 100 in 30 days.—*M. F. Gibbs,* Livonia, N. Y.

Worth $25.00 to me.—*Wm. Smith,* Gardener, etc.

It is light, strong, and durable. Easy to work. **Delivered express paid, anywhere in the U. S. on receipt of price.**

CLUBS OF THREE, $5.00.
Address, **Pontiac Novelty Works, Detroit, Mich.**

HAY CARRIER.

MALLORY TRACKLESS HAY ELEVATOR, best in the market for filling a barn with hay. Better than any track carrier. Easily put up and taken down. Price only five dollars. Warranted to give satisfaction, or money refunded. Best hay fork in the market, $3.25. Write for catalogue and terms to agents.
HERBERT BAKER, 100 Erie St., Toledo, O.

WINTER IS THE TIME

To Put up your Tracks for

HAY CONVEYORS,

while the barns are full. You can then do the work yourself without the aid of a carpenter, as you require no scaffolding. For circulars and prices of the best Hay Conveyors, for either straight or curved track, address, **J. A. CROSS,** Fultonville, N. Y. *State* and *local* agents wanted.

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FOR STRAIGHT OR CURVED TRACKS.

Ensilage and Grain Buckets, Post, Floor and other Pulleys. Feeding Cars running in front of cattle upon elevated double rail track.
Cars running upon same style track for removing manure from Stables. Carriers for handling baled hay or cotton and general merchandise, will elevate or lower at any point along track. (Only carrier in the market that will do it.)—Also a Hand Hoist & Carrier for Stores, Warehouses, &c. Send for Catalogue. AGENTS WANTED.
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Also Manufacturers of the Celebrated **Halladay Standard Pumping and Geared Wind Mills, I X L Feed Mills, Stalk Cutters, Sheilers, Horse Powers, Jacks, Tanks, Pumps, &c.**

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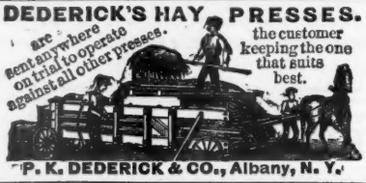
are sent anywhere on trial to operate against all other presses.



the customer keeping the one that suits best.

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Used in Dairies now all over the U. S. Makes more Butter than any other process with less ice. We manufacture **Churns, Butter Workers, etc.** First order at Wholesale where we have no Agents. AGENTS WANTED. Send for Circulars.
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SIMPLEST & BEST.

BUTTER WORKER!
Most Effective and Convenient. Seven Different Sizes.
Also **Power Workers**
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PATENTED MARCH 23d, 1880.

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A Long Needed Want at last Supplied.

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Every Premium for **Long Keeping** butter, Lot B, Class 1, was awarded to butter made by the Cooley Process. Also **First Premium** for Sept. or Oct. butter, Class 2, and the **First Premium** for Print Butter.
Remember the **COOLEY** has a **Patented Process.**
Others imitate construction but cannot use the process.

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WELL BORING, ARTESIAN WELL DRILLING & MINERAL PROSPECTING MACHINERY

and how to use, is fully illustrated, explained and highly recommended in "American Agriculturist," Nov. No., 1879, page 465. Send for it. Portable, low priced, worked by man, horse or steam power. Needed by farmers in every county. Good business for Winter or Summer and very profitable. Makes wells in earth or rock anywhere. We want the names of men that need wells. Send stamp for illustrated price list and terms to Agents.
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Greatest Agricultural invention of the Age! Saves 90 per cent. of labor, Doubles the value of the Manure. Spreads evenly all kinds of manure, broadcast or in drill, in one-tenth time required by hand. Illustrated Catalogues free.
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ANALYSIS	Per Ct.
AMMONIA	5.06
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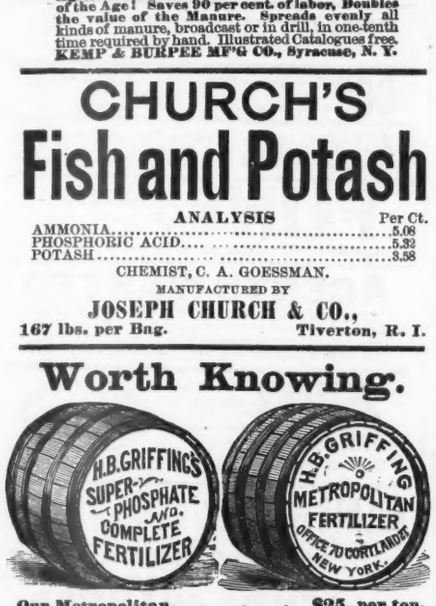
CHEMIST, C. A. GOESSMAN.
MANUFACTURED BY
JOSEPH CHURCH & CO.,
167 lbs. per Bag. Tiverton, R. I.

Worth Knowing.



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STEELED METAL **PLOW**

Is GUARANTEED to be made of first-class material, nicely finished, and warranted to give perfect satisfaction. They are made of
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which is FAR SUPERIOR to chilled iron. A large number now in use, and giving ENTIRE SATISFACTION.
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Belcher & Taylor, Agricultural Tool Co.
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The above cut shows the quality of the Potatoes which were exhibited last fall at Horticultural Hall, Boston, and took the Premiums which were offered for the Largest and Best Yield raised on the **STOCKBRIDGE POTATO MANURE:**

1st PRIZE.—178 Bushels from 1 Bush. Seed, or **712 BUSHELS Per Acre.**

On the 26th day of May, 1884, I planted one bushel of 60 lbs. of the "Pearl of Savoy" Potatoes on a new piece of ground that had been ploughed the previous fall, the rocks and stumps having been removed from it, and the ground thoroughly harrowed and prepared, **Stockbridge Potato Manure** was drilled in with a machine which opened the furrows and mixed the fertilizer with the soil, and left it covered, so that the potato sets did not come in contact with the manure. The potatoes were divided very small, so small that some of them failed to grow, but most of them came up, and made thrifty plants. The rows were three and one-half feet apart, and sets about 15 inches in the rows. The potatoes were cultivated two or three times with a horse-hoe, and once by hand; also weeded once by hand. They were dug and drawn to the barn, and carefully weighed and measured, and turned out **10,680 pounds.** I send you an average sample of the crop, showing them to be free from grubs or rot, and of good size. We did not get over a handful of small potatoes out of 100 bushels. *Signed,* C. F. THOMPSON.

Subscribed and sworn to before A. G. COMINGS, Justice of the Peace.

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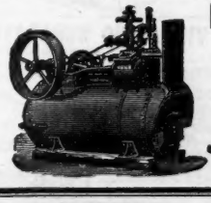
OPEN TO JUNE 1st!! YOU CAN BID BY LETTER!!
Say on Postal Card, I want to bid on fertilizers, and full information will be mailed by the EXCELSIOR FERTILIZER COMPANY, Alliance, Ohio.



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OVER 3,000 IN SUCCESSFUL OPERATION.
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INDIANAPOLIS, IND., U. S. A.
MANUFACTURERS OF
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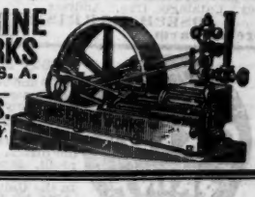
Carry Engines and Boilers in Stock for immediate delivery.



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5 TON WAGON SCALES,
Iron Levers, Steel Bearings, Brass Tare Beam and Beam Box.
$60 AND
JONES he pays the freight—for free Price List mention this paper and address JONES OF BINGHAMTON, Binghamton, N.Y.

PORTABLE CORN & FEED MILLS
Corn and Cob Mills, 18 sizes, adapted for all kinds of power. Warranted to do as good work as Buhr Stone, and to give satisfaction. We guarantee them to do all we claim for them. Will give a trial *often days*, and if not as represented, can be *returned at our expense*. AMERICAN GRINDING MILL CO., 75 & 77 N. Clinton St., Chicago, Ill.
Send for Catalogue and Price List.

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Cane Mills
For Horse and Steam Power.
Evaporators
For Syrup and Sugar.
Known and Used the World Over.

We are the sole makers of the Victor, Great Western, and Niles Cane Mills, of the original and genuine Cook Evaporator, and of the Automatic Cook Evaporator.
BLYMYER MANUFACTURING CO.,
CINCINNATI, O.
Manufacturers of Steam Engines, Boilers, Ice Machinery, and Refrigerating Machinery.

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Rubber Roofing.—The Rubber Roofing manufactured by the Indiana Paint & Rubber Roofing Company of this City and Indianapolis, is warmly recommended to us by those who have tried it, both for its cheapness and durability. It can be put on with rapidity, and we have no hesitation in recommending our readers to give this roofing a trial. A small quantity will enable one to ascertain whether it suits his purpose.

Veterinary Colleges.—Let us have them in every State in the Union. The one located in this city, viz., the American Veterinary College, has been remarkably successful. Established only about eleven years ago, it has a record of over twenty-one thousand patients treated. Its graduates number several hundred, and it has an able faculty.

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Grown from TILLINGHAST'S PUGET SOUND CABBAGE SEEDS (now generally acknowledged to be THE BEST IN THE WORLD), may be procured in any quantity of the undersigned (the original introducer), and also of special agents in every section of the Union. On application I will give intending purchasers the address of agent nearest them. Address

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TEN MILLION
Cabbage and Celery Plants

The best varieties, and the best of plants, at *extremely low* prices. Catalogue free. Address

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Ready Mixed Paints.

50, 60 and 75 cts. per gallon. Best Linseed Oil Paint, shipped to any part of the U. S. 20 handsome and durable shades. Thousands of property owners and builders order direct. No agents. One profit. Send for color card and list, free. Largest works in the United States.

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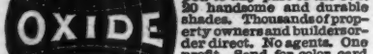
P. O. Box 260, Pittsburgh, Pa.

DAIRY THERMOMETERS!



Every farmer should have one. Sent safely by mail for 50c. Send for Catalogue of Thermometers, Lactometers, Creamometers and Thermometers for Incubators.

W. M. McALLISTER, OPTICIAN, No. 720 Chestnut St., Phil.

EVERY ONE Who Owns a **WAGON** Wants **A EUREKA FOLDING CANOPY TOP.** Folds up like an umbrella. Weighs less than **12 lbs.** Can be taken off or put on in **3** minutes. Made in sizes to fit business wagons, pleasure wagons and buggies. Send for illustrated circular and price list. Agents wanted everywhere. State where you saw this. **D. G. BEERS & CO.,** Patentees and Manuf'rs, Sandy Hook, Conn.

Zimmerman Fruit & Vegetable Evaporator

Made of Galvanized Iron.

Over 16,000 in Use.

Portable, Economical, Durable and Fire Proof. The products of this Evaporator are unsurpassed as to quality or color, and command the highest price. The racks are made of Galvanized Wire Cloth and the Dryer is first-class in every particular. Five sizes are made.

OUR Nos. 1 and 2 are EXCELLENT BAKERS, will bake bread in less time than a stove and for roasting meats, turkey or game can not be excelled. *Full Instructions* how to dry, bleach, pack and market the products accompany each machine. Send for illustrated catalogue. Address,

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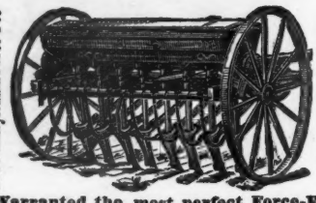

Warranted the most perfect Force-Feed Fertilizer Drill in existence. Send for circular, A. B. FARQUHAR, York, Pa.

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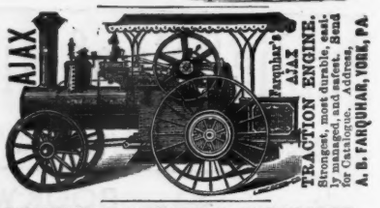
Cheapest and best for all purposes—simple, strong and durable. SAW, GRIST MILLS AND MACHINERY generally. Inquiries promptly answered. Send for Illustrated Catalogue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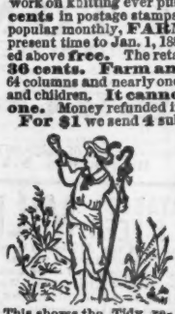
3 Splendid Books Free.

INSTRUCTIONS FOR PATCH-WORK, a new book showing how to cut and put together all kinds of patchwork, how to make all the new and fancy stitches, has **65 illustrations: MACRAME LACE AND RICKRACK TRIMMING;** which tells how to make all varieties, **29 illustrations; HOW TO KNIT,** a **60 page book** containing **36 illustrated patterns** with rules for laces, mittens and fancy designs. The best work on knitting ever published. On receipt of only **25 cents** in postage stamps or currency we will send our popular monthly, **FARM AND HOME** from the present time to Jan. 1, 1886, and the three books described above **free.** The retail price of the books alone is **36 cents. Farm and Home** has 16 pages and 64 columns and nearly one half is devoted to the ladies and children. **It cannot fail to please everyone.** Money refunded if not satisfactory.

For $1 we send **4** subscriptions to **Farm and Home** to Jan. 1, 1886, **4 sets** of the above books and to the **sender of the club**



A Felt Tidy Free,

—"Little Boy Blue"—size 14x17 1-2 inches, stamped ready for working, together with instructions how to work it and two spools of Florence Etching Silk—all the material needed to make it one of the prettiest ornaments a lady can have. Any lady can work it. All the materials are first class, and would cost at stores 50c. Address **FARM AND HOME, Springfield, Mass.**

This shows the Tidy reduced in size.

—SHORT-HAND LESSON SHEETS— For **Self Instruction,** mailed complete for $1 to any address, enabling you to **report** in **Twelve Easy Lessons.** Pamphlets free. **McKnight & Morgan,** Reporters and Publishers, 1338 Chestnut St., Philadelphia, Penna.

PHONOGRAPHY OR PHONETIC SHORT HAND. Catalogue of works by Benn Pitman and Jerome B. Howard, with alphabet and illustration for beginners, sent on application. Address:
PHONOGRAPHIC INSTITUTE, Cincinnati, Ohio.

50 CARDS all perfumed, New designs, little beauties, Gold Chromo, Verses, Mottoes and Hidden Name, with an elegant prize, 10c. Ivory Card Co., Clintonville, Ct.

60 New Style, Embossed Hidden Name and Chromo Visiting Cards no 2 alike, name on, 10c., 13 packs $1. Warranted best sold. Sample Book, 4c. L. JONES & CO., Nassau, N. Y.

AGENTS coin money collecting Family Pictures to enlarge; all styles. Pictures guaranteed, Special inducements. EMPIRE COPYING CO., 387 Canal Street, N.Y.

FUN Bro. Jonathan's Jokes 80 pages, Illustrated. Sent, Postpaid, for Twelve Cents.
Excelsior Publishing House, 29 & 31 Beekman St., New York.

AGENTS WANTED

Illustrated Historical Family Record and Album will sell in nearly every home. Write for circulars and terms and make **$75 to $100** per month.
Historical Publishing Co., Dayton, Ohio.

50 Satin Embossed Cards, with name, 10c. (not the cheap 10c embossed pack) 5 packs and this Rolled Gold Seal Ring for 50c. Agts.' Album, 25c. **Alling Bros. Northford, Ct.**

AGENTS wanted for the History of Christianity, by Abbott. A grand chance. A $4 book at the popular price of $1.75. Liberal terms. The religious papers mention it as one of the few *great* religious works of the world. Greater success never known by agents. Terms free. STINSON & CO., Publishers, Portland, Maine.

AGENTS WANTED
FOR OUR NEW BOOK
HEROES OF THE BIBLE

With original articles from Leading Divines of the day. Nearly **800 pages. 20 full-page engravings.** *Exclusive territory guaranteed.* **Extra Inducements offered** energetic Agents. Address **A. J. HOLMAN & CO., 1222 ARCH STREET, Philadelphia, Pa.**

6th **OLD BOOK CATALOGUE. NOW** ready. A Grand Collection of Choice Old Books, best English editions of standard works, magnificently illustrated books, etc., etc., purchased from private libraries, and now offered at greatly reduced prices. Mailed FREE on receipt of postal card.
ESTES & LAURIAT, 301-305 Washington St., Boston.

13th **CLEARANCE CATALOGUE OF NEW BOOKS,** Just ready. A special list, in which sweeping reductions are made in the prices of standard books, *all new and perfect,* for the purpose of reducing stock after our annual inventory. *A Rare Chance for Private Buyers.* Mailed FREE on receipt of postal card.
ESTES & LAURIAT, 301-305 Washington St., Boston.

FREE TO ALL! Circulars of Standard Works which will pay from $75 to $150 per month to agents. One agent is wanted in every town. **READY LAWYER.**—Indispensable to everybody; will save its cost ten fold if legal advice is ever required; contains forms for deeds and mortgages, homestead laws; tells how to obtain government lands; valuable information relative to insurance contracts and laws of the several states, wills, and every conceivable form of document; 688 pages; price $4.75. **AMERICAN FARMER.**—Complete information on the following:—treatment of soils, field crops, kitchen garden, the dairy, fruits and fruit trees, domestic animals, poultry, bees and silk worms, flowers and ornamental trees, rural architecture, scientific operations, diseases of plants, noxious insects, tables of ready reckoning for farmers. Superbly illustrated, 724 pages. Price $3.50. **FARMER'S RECORD AND ACCOUNT BOOK.**—9 1-2x13 inches, contains spaces for recording every transaction on the farm; shows exactly how much profit is made on each crop and on each animal; is completely ruled and has printed headings so that simply a legible hand-writing is necessary to keep it; besides, there are 154 tables of information which are worth ten times the cost of the book. Made of very heaviest, extra double, French folio cap paper, ruled in blue and red; 166 pages; price $3.00. All three of these books are in first-class binding and handsomely printed; they are brought down to date and written by well-known authors, therefore, the information in them is perfectly reliable. The price of the three books is $11.25, but during this month they will be sold at $4.50 per set. Send your orders at once and if you do not think the books worth the cost, you can return them and your money will be refunded.
C. F. DEMMER, Publisher, NEW HAVEN, CONN.

Ear Drums.

To a number who have inquired about these, we say, *Don't.* Do not tamper with your ears yourselves, nor allow any ignorant seller of Ear Drums to do so. Before doing anything, have the ear examined by a regular surgeon and ascertain what is the matter. Quacks have had credit for marvelous cures, for merely removing a deposit of indurated wax. In all cases, whether of the ear, or any other organ, first ascertain what is the matter.

Electrical Belts,

and other contrivances are frequently inquired about. We have never seen one of these that could be of any use electrically. That is, one that could pass any electricity into or through the body, or any part of it. We do not say that there are none—but merely that all those we have examined are perfectly useless.

A New Face for an Old Foe.

The oldest of frauds is that which proposes to sell much bad money for a little good. These chaps have presented their circulars in type, lithographed, to appear as if written, printed on the type-writer, etc. At last we have one written with a pen. Is business dull, and is there no money to pay printers' bills? We advise H. Andrews to get blacker ink, a better pen, and then to go to writing school, and he may, in time, write so that his precious documents can be read.

Breeding for Sex.

"Don Diego," of Canonsburg, Pa., sends us the circular of a doctor in Illinois, who proposes "for ten dollars, and a pledge of confidence," to give instructions in breeding for sex. The sender of the circular asks us if it is not a humbug? To be able to produce either sex at will, would be of immense value to the breeders of the country. Many have claimed that they could do this, but their claims were not supported when tested. Of course, we can not say that this Illinois doctor has not discovered the method. The probabilities are against him, but the modesty of his circular indicates that he believes in his own claim. Selling his secret under a "pledge of confidence," (he no doubt means secrecy) will amount to very little, as the method will soon get out. In view of its importance, Doctor Cox should make his method public. If his claim is well founded, he will have world-wide fame, and the breeders of the country would gladly join in asking Congress to give him a suitable reward. Peddling the secret at ten dollars, is belittling the discovery.

Do not Employ a Doctor who Advertises Himself.

There are always in our monthly budget of Humbug letters, numerous inquiries about medical matters. The majority of these would not have been sent if the writers had remembered our rule, which we here repeat. We would not ourselves employ, nor would we advise another to employ a physician who advertises his cures, or who warrants to cure. It makes no difference if the so-called doctor advertises as an individual, as an "Institute," a college, dispensary, or by any other corporate name. The chances are that these chaps have no right to the title of "M. D.;" or they may have graduated, but failing to secure practice, have resorted to quackery for a livelihood.

Bogus Veterinary Diplomas.

The demand for veterinary surgeons is rapidly increasing with the growth of our live stock business. Very properly, the veterinary practitioners are surrounding the profession with strict safe-guards to keep out quacks and frauds who pretend to be cow doctors and horse doctors. The great aim of these fellows is to get a diploma from some college to frame and hang up for their visitors to see. A fellow who dates his letters from the Palace Building, Cincinnati, Ohio, offers to confer a degree of Doctor of Medicine (M. D.) upon all members, and the fee is fifty dollars. It is cheap enough; but it is in violation of the law, and may be dear enough to any foolish man who sends his application and fifty dollars.

What is a Lottery?

A lottery is any scheme whereby a person paying in money has a chance of drawing out less or more than the sum he put in; it does not matter if there are no blanks, the fact that the prizes are subject to chance, makes it a lottery. When any concern, a "Banking Co.," or any other, offers any number of premiums varying in amount according to a drawing, and offers to sell bonds for five dollars and "the balance payable in monthly instalments," that concern has all the earmarks of a swindle, and is an undoubted lottery, and is therefore unlawful. And such schemes are to be severely let alone.

Prolific Salem Corn.

It is doubtful whether it is Salem or Corn which is prolific; but it is Salem which has been prolific of this alleged corn. Two men of Salem, in Oregon, have a kind of corn, which they say surpasses every other kind. It was procured at considerable expense, and a crop of it was raised in 1884. A sample package is very generously offered to every farmer in the United States for sixty cents. The next paragraph calls the sample package a sack, and no more than "two sacks" will be sent to any one farmer. Well, that is pretty liberal, for there are about five million farmers and they would require ten million "sacks," and if prolific Salem produced all this corn, it well deserves the name. "Now is your time," the proprietors of this "Sale-'em" corn say; "send sixty cents with your order and get a sample package, which is sacrificed in 'sample sacks' for this small price, and raise twice as much per acre as any other variety will produce. Walk in, gentlemen, send in your orders, and bind yourselves to sell the crop to me, if I want it," at double the price of common corn. More of the earmarks!

The Old, Old Story.

Country people are always in search of bargains. Auction sales in the cities attract a good many farmers, who come with their wives to look after bargains in furniture and horses. They look over the list of auctions and find that a gentleman who is about to go to Europe, offers his splendid furniture and carpets for sale. Here is a chance for bargains. The farmer's wife takes her husband—and his pocket-book—and goes to see the handsome furniture sacrificed. Every bid she makes is raised by a stout man with a red bottle nose, handsomely colored and knobbed all over by rum. The lady wonders why this man wants every thing she wants, and sets her mind on beating him every time—"the nasty, red-nosed thing." She gets mad; "her dander's up," so to speak, and she gets all she wanted, and a great deal more, in spite of the remonstrances of her scared husband. "Well," she says, "Mrs. Jones will open her eyes now when she sees the blue satin parlor set, and the best bedroom set, and the gorgeous carpets." The good woman finds to her sorrow that the goods never were owned by any gentleman gone to Europe, but are trashy rubbish, stuck together with glue; the blue satin is cotton and fades all out, and the carpets are mere "skins." It is all bogus. This trick is played every day, and the red-nosed man is a fraud who never buys anything, but makes his living by "raising bids" day after day. Avoid all auction rooms and horses which are "the property of a widow whose husband, recently deceased, was in the trucking trade."

THE UNGRATEFUL CITY

is what the old Roman poet called it, and what was true two thousand years ago, is true now, because human nature is always the same. And this is precisely why history repeats itself in small things as well as great. If a farmer or country dweller goes to a city in search of bargains, let him or his wife always go to a reputable store, and never, NEVER, NEVER trust a stranger; or he will be sure to find how ungrateful the city is to the men who feed it and supply it with business.

The United States Medicine Company.

This "company" has logic on its side. It lays down the premise, "Every good housekeeper knows how important a general house-cleaning is in Spring."—"Jess so."—It, of course, follows that, "On the same principle every wise, intelligent person knows how important it is to attend properly to purifying the blood and cleansing the system in Spring." You clear out and whitewash your cellar in Spring—therefore you ditto your liver. Admitting this, it follows that as Doctor D.'s "Liver Regulator and Blood Cleanser kills the Root of all Diseases," said "Regulator" is what we must take in our Spring bodily house-cleaning. The ingredients of this medicine are given, and in spite of the bad spelling we infer that it must be very "sarchin'." Among other ingredients it contains *Sod. Bicarbons*, which is the bogus scientific name for Baking or Cooking Soda. Great is 'larnin.' We are glad to learn that this "Regulator" is rapidly driving out all the worthless "Bitters," "Syrups," "Purifiers," and "Patent Nostrums," "which have been put upon the market by inexperienced and obscure persons."—When this nostrum drives out all the others, we have only to drive out this and the jig will be up.

Long Loans at Four Per Cent.

It is a suspicious circumstance that a man of nearly the same name as the Medical College chap, and who "hangs out" at the same Palace Building, Cincinnati, offers "Long Loans at four per cent interest; the principal never need be paid as long as the interest is kept up. Honest poor men can send six cents for particulars," etc., etc. Who would be lonesome for want of a loan of this kind? Six cents is a small sum, but a thousand times six cents is sixty dollars, a very good income for one day. And thousands of letters with six cents in each go every day from honest (?) poor men in search of a loan that is never to be repaid, and personal security only is required for the interest. Don't you believe that some applicants for these loans think: "Here's a good chance to 'go in' for a thousand dollars? Personal security ain't anything to be afraid of; let him sue if he likes, so long as I get the money." But this is not the game; it is "heads I win, tails you lose," although it is only six cents. For when you send the six cents, you will be informed that if you send two dollars for a year's subscription to a certain newspaper, your name will be put down for a loan, and when one hundred thousand subscribers have paid, the loans will be made "in turn." You must not be in a hurry, only wait your turn. And a great many two-dollar subscriptions are sent in, but they have not reached one hundred thousand yet. And when do you think they will?

Books You Don't Want to Buy.

The circulars of the "Standard Silver Ware Company," of Boston, have long been familiar to us as offering ware more or less silvered, the same being "Electro-Silver-Plated Ware." Apparently trade in "Standard Silver Ware," has not been as profitable as the "Company" desired, as they have now added an annex in the shape of a "Book Department."

"RAPID FORTUNES EASILY MADE:

"The Great Book of money making secrets, or five hundred ways to get rich when your pockets are empty." This is the title of one of these wonderful publications. If the "Company" will please give us but one "secret" to do this, we will cheerfully forego the four hundred and ninety-nine....Then we have, "The Veritable Black Art." There are numerous sub-titles about "Witchcraft," "Magic," "Ancient and Modern Sorcerers," etc. When we say that it tells "how to make gold out of lead," is it not pardonable to ask, what is their "Silver Ware" made of? Among other things, it explains "How to call the dead from their graves,"—but does not "explain," "will they come when you do call them?" When "it tells" "How to make a woman to do your will," we begin to doubt. Women usually have a "will of their own." Then among the books (we do not pretend to give all), is one giving somebody's

"CHARMS, SPELLS (*Sic!*), AND INCANTATIONS."

This gives the "moon's strange influence on children, youth and grown folks," which strikes us as a clever thing to do; and much more of the same style. If the ideas of this Company as to what is sound in plated ware, are on a par with its ideas as to what is sound among books, it is a legitimate question—what sort of stuff do they send out for silver ware?

Bunco Steerers

still live and thrive. "Ah, Mr. Brown, how do you do?" "My name is not Brown, it is Green; Samuel Green, of Greenville." "Beg pardon, Mr. Green, you look like my friend Brown; excuse me, sir." Mr. Green goes on a few blocks, his new acquaintance inquiring about Greenville. Mr. Green is pumped dry before the Bunco man leaves. By and by he gets a good smack on the shoulder, and another man calls him by name, and claims him as an old friend he knew in Greenville when he was a boy. "Could never forget Green, oh no!" The end of it is, Green is roped into a den; gets into a row is arrested, and it will be in all the papers if he doesn't settle. To avoid trouble, he submits to be bled. A well-known and wealthy farmer was fleeced for more than five thousand dollars in this way, to keep the affair still. And he was innocent of wrong; but was very green.

One Month More.

With the last day of June the offers made in our great Premium List cease for the present volume. There still remains a full month's time for the completion of any lists already begun; or new clubs may yet be formed, and a large variety of useful articles received without cost, by simply procuring the required number of subscriptions to the *American Agriculturist*, and sending the names to us. Send immediately for a new Premium List, if you have mislaid yours.

Still Open.

The American Agriculturist Family Cyclopædia.—The offer of our Family Cyclopædia with the *American Agriculturist*, is still open. We have received responses from all quarters, from those who have availed themselves of our offer, and who are delighted to receive so valuable a gift, having only to pay the postage, in connection with this journal. Will any of our readers who have not yet done so, please call the attention of their friends to the Cyclopædia and the paper, and let them know that upon forwarding only $1.65 to the publishers of the *American Agriculturist*, they will receive both that journal and this most valuable work for the family.

Engraving of General Grant.

On page 227 of the *American Agriculturist* for May was described the magnificent portrait of General Grant, and the Special Premium offers made. The offers are still open.

The American Agriculturist Simple Microscope

fully described in our forty-four page Premium List, has been sent out to a very large number of our subscribers, and received the highest praise from all. This Microscope is manufactured after original designs, by the celebrated Bausch & Lomb Optical Company, and can be obtained only through us.

We will present one of these Microscopes, delivered free, with the *American Agriculturist*, postpaid, to any new subscriber for 1885, for two dollars. Any person who is already a subscriber to the *American Agriculturist*, can have one of these Microscopes delivered for one dollar and twenty-five cents.

Bound Volumes.

We can furnish bound copies of the *American Agriculturist* for 1884, and for the previous fifteen years at $2.00 per volume; 30 cents added for postage when sent by mail.

To Our Friends.

All of our friends who have raised clubs for the *American Agriculturist* this year, will confer a special favor upon the Publishers of the *American Agriculturist*, if they will please see each member of the club immediately upon receiving this number of our periodical, and ascertain whether or not one and all are receiving the periodical satisfactorily. We believe we have effectually thwarted all the treachery which has been going on for the last twelve months against our Subscription List, and the *American Agriculturist* generally. We ask our canvassers and club agents to co-operate with us.

To Correspondents.

Please direct all your communications to the *American Agriculturist*, 751 Broadway, New York.

The Chicago Plan.

The work of manufacturing anonymous circulars at Chicago, and plying our readers with them, continues. Here, however, appears to be a special circular letter, designed for our *canvassers*, to which the so-called "Editor and Business Manager" attaches his name. The reader can imagine the profound sensation of disgust which our Dakota agent experienced, and which every other honorable agent must experience on receipt of a letter, containing such infamous suggestions as the following:

"On looking over our Agents' Record, just now, I am sorry to find you have not been able to send any subscriptions from your place. For the sake of the **future,** I am anxious to have at least one of your people seeing and reading what we are now giving. I know that times are hard, and money scarce; but for the sake **of the future,** may I ask you to kindly make an earnest, special effort now to get at least one subscriber. **Do not mention this low offer. Let the subscriber think the reduction is yours,** on account of your having had the paper, or **give some other reason.** Please gratify me, personally, in the above request, and much oblige, Yours truly. ——"

More Anonymous Circulars.

Our subscribers, canvassers and club agents all over the country, are now forwarding us all manner of anonymous circulars received by them from Chicago, which aim at the circulation and good will of this periodical, as well as containing all manner of statements which have not a particle of foundation in truth.

W. A. R. writes us from Mercer Co., Illinois: "Enclosed you will find some circulars from Chicago. I have wondered how he got my address. I did not send him a postal card with my name. This is the fourth year I have taken the *American Agriculturist*, and I like it better every number. I have read it ever since 1857. He has sent me lots of circulars." One of the circular letters forwarded us by W. A R., contains the usual clap-trap statements and expressions of desire to "renew old acquaintance."

Operating in Nebraska.

Jesse Webb, one of our old subscribers in Kearney Co., Nebraska, sends us still another form of circular from the "Chicago skipper," adding: "I received the enclosed circular in an envelope with 'special' printed on it, the same as the enclosed. I believe it is a fraud, and so send them to you."

Covering Dakota.

F. J. P., one of our subscribers for ten years, in writing from Grant Co., Dakota, says: "I have just received the enclosed circulars, and now send them to you, though you have doubtless received many such. The circulars have been sent to every one of your subscribers that they could reach."

Trying his Little Game in Westchester County, N. Y.

J. B. S. writes from Westchester County that something is rotten in our subscription department. He says that in subscribing for his son last year he made up a fictitious name of two other names, to please the boy, and the *American Agriculturist* was sent to his son on this name. Now come circulars to his son from Chicago, and circular letters and copies of a newspaper, all directed to this fictitious name. J. B. S. adds that this name could have been procured only from the subscription list of the *American Agriculturist*. Why bless your soul, J.B.S., so far as the fictitious name of your son having been purloined from this office—the entire subscription lists have been carried off, and all our subscribers, new and old, must know where they are by this time.

Wants a Full Exposure.

J. M. W., of Cass Co., Mo., wants us to give a "thoroughly trustworthy account" of the frauds now being practiced upon us in Chicago, even if "it takes a whole number of the *American Agriculturist*." We do not care to devote more space to this matter than is simply necessary to protect our own interests. It is not a pleasant task, making revelations of fraud and rascality, even when done for our own protection.

Not Yet.

One of our friends, a newspaper man, who a few years ago made Ananias disgorge to a large amount, says that he thinks we have sufficiently exposed him, and it would be well now to drop the matter. We shall drop the matter when our subscription lists are returned, and when the offenders cease to use the United States mails to ply our subscribers with anonymous circulars filled with untruths.

Curiosities.

A. H. C., in writing from Cincinnati regarding the anonymous circulars which he has received from Chicago, says: "I have preserved them as curiosities."

The Sackett Plow Victims.

Since the May issue of the *American Agriculturist*, several more Sackett plow victims have reported to us. The number in this city and vicinity who narrowly escaped, is legion, but the promoter of the scheme appears to have extended his ramifications even beyond our hemisphere. For example, here is a letter from way down in Tasmania, Australia:

HOBART, 20th March, '85.

To the Editor American Agriculturist.

Dear Sir:—In May last, having previously seen the advertisement in your columns, I wrote for catalogue of the Sackett Plow, and not receiving reply, sent another reminder. By the 'Frisco mail delivered a day or two ago, I received a packet of catalogues, one of which I enclose, also the letter from ——, as since I sent the letter your notice in Sundry Humbugs does not seem at all satisfactory, and I am quite satisfied to let them alone. I was taken with it at first when I saw it advertised in your paper. I remarked to them in writing my surprise in not seeing it continued in the *American Agriculturist*, but had not seen any warning against it. I am writing acknowledging receipt of catalogues, but declining anything to do with it unless you can see any reason to alter judgment, and note such alteration in a future issue.

I have communicated with several firms who have advertised in your paper, and done business with them, solely on your recommendation. I have been a subscriber for many years, and look for your monthly greeting with much interest. I send this as a message from one of the extremes to which your paper reaches, so that you may have one more to add to the thousands of like testimonies you have already received of the value placed by your readers on your efforts for their advancement. With best wishes for your long continued success, believe me, Yours sincerely,

THOMAS B. MATHER.

The description of the Sackett Plow, alluded to above, was smuggled into these columns. When the fraud was afterward discovered, all allusions to it were rigidly excluded from both our reading and advertising columns, and the author subsequently *retired* from the *American Agriculturist*.

E. P. Roe.

Rev. E. P. Roe writes us from Cornwall-on-the Hudson: "I would now like to add a few personal words. As I stated in my last catalogue, I have gone out of the plant business, and I should be glad if the fact were more generally known. Every mail brings solicitations for my advertisement when I have nothing to advertise; also numerous letters from fruit-growers and applications for catalogues. Please let me state that I have disposed of my nursery interests to Mr. H. G. Corney, Cornwall-on-the-Hudson, N. Y. My motive for giving up this business was that I might devote all my time to literary work. If I should try to reply to questions and communications my purpose would be defeated. My love of fruit-culture is unabated, and since I have been requested to give my views from time to time, I hope to comply in brief papers like that in the *American Agriculturist* for June, but I cannot afford the time for a general and private correspondence.

VICTORIES

The **only** machine that received an award on both Horse-power and Thresher and Cleaner, at the Centennial Exhibition; was awarded the two last **Gold Medals** given by the New York State Agricultural Society on Horse-powers and Threshers; and is the **only** Thresher selected from the vast number built in the United States, for illustration and description in "Appleton's Cyclopedia of Applied Mechanics," recently published, thus adopting it as the **standard** machine of this country. Catalogue sent free. Address

MINARD HARDER, Cobleskill, Schoharie Co., N. Y.

UNEQUALED

STONY BROOK STUD FARM, PRINCETON, N. J.

Too much cannot be said in praise of this invaluable medicine (Liebig Co.'s Arnicated Extract of Witch Hazel) for the horse. I should advise all horse owners to keep it constantly on hand. Colonel D. McDANIEL.

I have used Liebig Co.'s Arnicated Extract of Witch Hazel with grand success. JOSIAH H. MACY.
Harrison (West. Co., N. Y.), Blooded Stock Farm.

SARATOGA STABLE CO., N. Y. CITY, 690, 692, 694, 696 and 698 Lexington Avenue.

It needs only to be tried to be pronounced the very superior article which it is.

LEXINGTON, KY.

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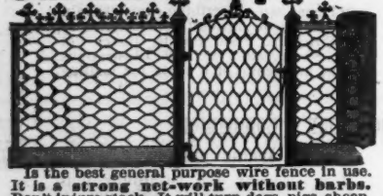

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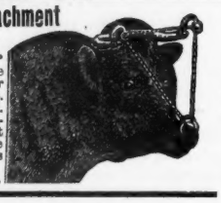

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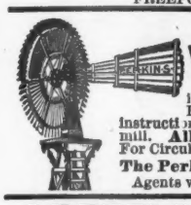

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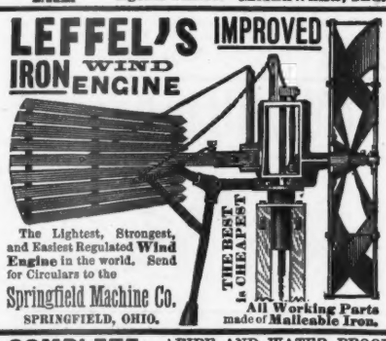

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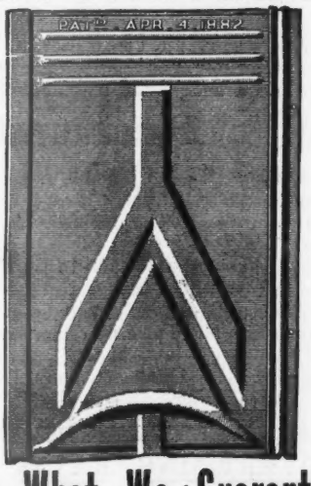

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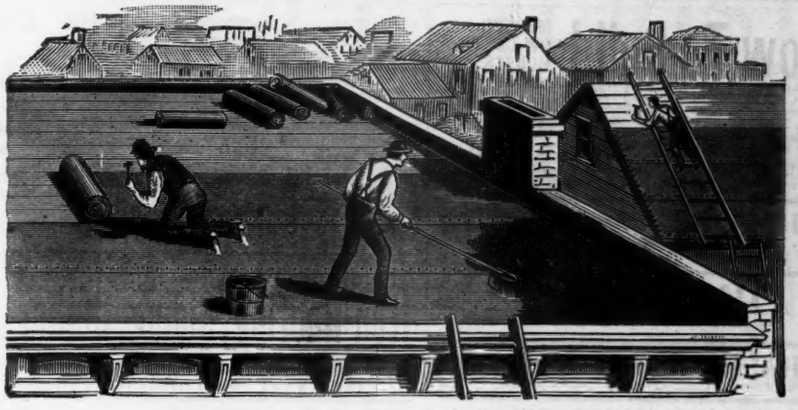

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We used quite an amount of your Rubber Roofing and Slate Paint in 1883, have not a single leak; consider it the most speedy roof laid, and very durable. We do Slate and Tin Roofing, and have less trouble with your Rubber and Slate Paint Roofs, than any one we put on. KNIGHT & CRIDER,
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I have used your Rubber Roofing and am well pleased with it, for it does not expand and contract with heat or cold as metal roofs do, is more easily and quickly put on, and cheaper. A. J. YOUNG,
RICE'S LANDING, Pa., Nov. 3, 1884. Farmer and Stock Raiser.

Your Rubber Roofing is on my buildings. I am recommending it to my neighbors, for I think it is a good roofing. I. C. SCHRECKENGOST,
PUTNEYVILLE, Pa., Nov. 3, 1884. Farmer.

I used your Slate Roofing Paint on my roof over one year ago, and it has saved me a new roof.
SMITHPORT, Pa., Nov. 4, 1884. W. F. ORMSBY, Farmer.

I have thoroughly tested your Temporary Rubber Roofing, and find it is exactly as you describe it; a perfectly water-proof and sun-proof material, and taking into account the rapidity with which it can be applied, the number of years it will last, and the ease with which it can be transferred from one building to another, I can safely say it is the cheapest article of that kind on the market. We used 18,000 feet. J. C. FORSYTH, SUPT.,
CAMPS, TELFAIR Co., Ga., Oct. 29, 1884. Georgia Land and Lumber Co.

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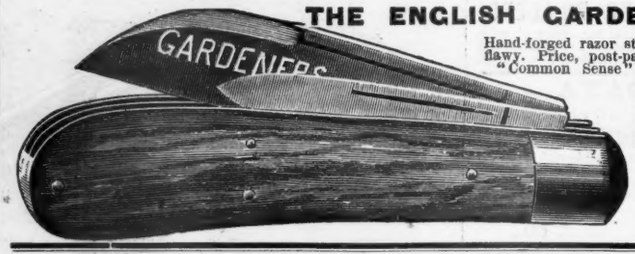

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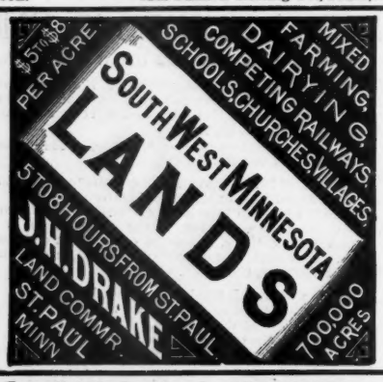

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